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Ontario Hydro
Annual Report 1986

Quality of service can be sustained and improved only when we continue to stay in touch, to respond, to evolve with the changing needs and values of our customers.

That commitment has been part of our tradition and absolutely vital to our success, right from the very beginning.

Ontario Hydro
700 University Avenue
Toronto, Ontario
M5G 1X6

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Front Cover
Customer Robert Chapman (right) from eastern Ontario discusses his new electricity supply with Customer Service Supervisor Kevin Leach.

Ontario Hydro's Board of Directors' Report for 1986

To:
The Honourable Vincent G. Kerrio
Minister of Energy

Ontario Hydro's Board of Directors submits to you this report of the financial position and relevant Ontario Hydro activities for the year 1986.

We thank you and Ministry of Energy staff for the cooperation extended during the year.

On behalf of the Board,

Tom Campbell.

Tom Campbell
Chairman
April, 1987

	1986	1985
	(millions of dollars)	
Revenues	**4,853**	4,625
Net Income	**247**	360
Total Assets	**31,357**	29,320
Investment in Fixed Assets	**2,523**	2,541

The Corporation

Ontario Hydro is a corporation without share capital created by a special statute of the Province of Ontario in 1906. It now operates under the authority of the Power Corporation Act, R.S.O. 1980, Chapter 384, as amended, with broad powers to generate, supply and deliver electric power throughout the province. It is also authorized to produce and sell steam and hot water as primary products. The Corporation's prime objective is to supply the people of Ontario with electricity at the lowest feasible cost consistent with high safety and quality of service standards.

Ontario Hydro sells wholesale electric power to municipal utilities in urban areas who, in turn, retail it to customers in their service areas. Ontario Hydro also serves directly more than 100 large industrial customers and 813,189 rural retail customers in areas or communities not served by municipal utilities. In 1986, approximately 3,241,000 customers were served by Ontario Hydro and the municipal utilities in the province.

Ontario Hydro operates 81 hydraulic, fossil and nuclear generating stations and an extensive power grid across Ontario to meet the province's demands for electric energy. Interconnections with other power systems place the Corporation in a far-ranging electrical grid that covers a large segment of the North American continent.

In addition, Ontario Hydro exercises certain regulatory functions over municipal utilities as well as the approval and inspection functions for electrical equipment (in conjunction with the Canadian Standards Association) and electrical wiring installations throughout the province.

Ontario Hydro is a financially self-sustaining corporation. The Province of Ontario guarantees bonds and notes issued to the public by the Corporation.

Ontario Hydro's head office is located at 700 University Avenue, Toronto, Ontario. For administrative and operational purposes, six regional and 48 area offices are maintained throughout the province.

The business and affairs of Ontario Hydro are directed and controlled by a board of directors consisting of a chairman, vice-chairman, a president, and not more than 10 other directors. All of the members of the Board, who represent a broad spectrum of Ontario society, are appointed by the Lieutenant Governor in Council of the province except the president who is a full-time employee of the Corporation appointed by the Board.

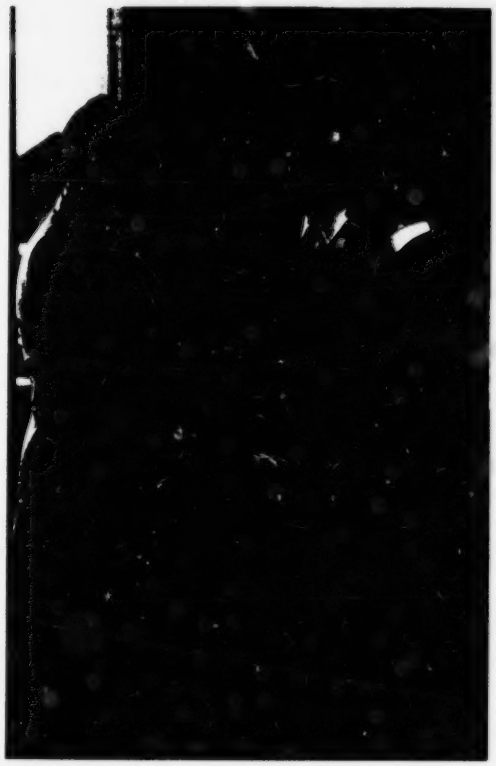
To assist the Board in directing the Corporation's affairs, there are five [illegible] of the Board: Finance, Audit, Management Resources, Social [illegible] Advisory. These committees review and make

It was the search for a better way to meet Ontario's growing energy needs that led to the establishment of Ontario's first publicly owned electric utility in 1906.

At that time, electricity was becoming an important element in the development of Ontario. However, few could afford the high cost of power service provided by the existing privately owned companies. Moreover, that service was unreliable and it was limited to only certain areas in the province.

Increasingly, many electricity customers and would-be customers voiced their dissatisfaction with the private power companies. Soon, cities were rallying for public power under the leadership of Adam Beck, the man who was to become the first chairman of Ontario's Hydro-Electric Power Commission, known today as Ontario Hydro.

The mandate of that Hydro-Electric Power Commission was clear: to provide customers with a reliable supply of electricity at a reasonable cost. For 80 years, we have been doing just that. In the process, we have taken on new responsibilities and learned new skills to meet the needs of an evolving economy and society. For the first 70 years of our operation, the demand for electricity grew at a rapid rate, averaging over seven per cent a year. Industries grew, farms became larger and more mechanized, and homes and commercial operations relied increasingly on electrical appliances.



Dieter Heins (left) of Ontario Hydro, Michael Farquhar (middle) of the Harbour Castle Hilton, and David Etier of Toronto Hydro discuss the Hilton's electricity costs. Ontario Hydro staff worked with hotel engineering staff to reduce electricity consumption by 33 per cent. More efficient lighting and better use of off-peak power for water heating have produced annual savings of $450,000.

But energy consumption patterns began changing in the 1970s. The effect of the OPEC oil embargo contributed to a weakening of the global economy. Interest and inflation rates soared. For the first time since World War II, the demand for energy declined as the price continued to rise.

These economic changes contributed to changes in society's attitudes and values. Energy became a number one public concern. Conservation of natural resources, together with preservation of the environment, became paramount public values. Unchecked increases in energy consumption and high electricity load growth came to an end. And customer satisfaction no longer depended solely upon a low-cost reliable supply of electricity.

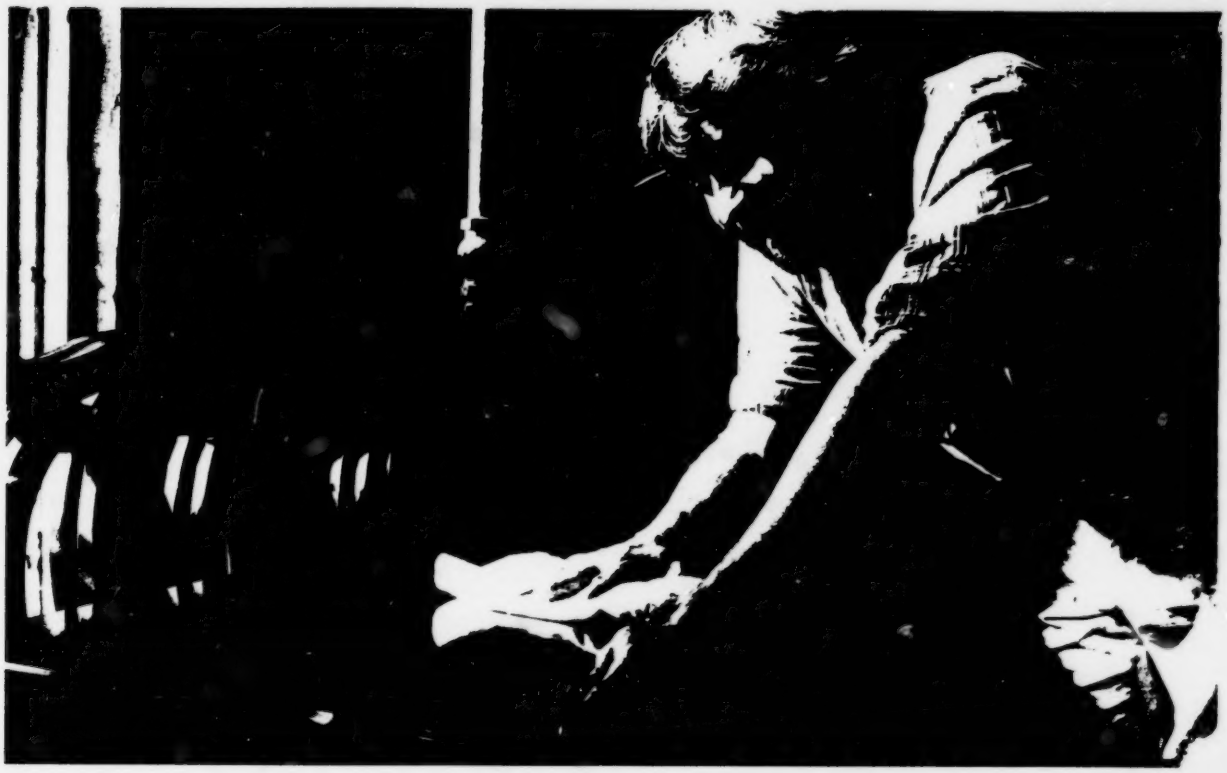
Other elements of electrical service became priorities. Electricity customers became more interested in using electricity efficiently. They also wanted to ensure that electricity was generated with minimum disruption to the environment. And they started to take a real interest in the planning and operations of Ontario Hydro.

1910s
Ontario Hydro Research Laboratories develop energy efficient lightbulb

1920s
Power from Sir Adam Beck I hydraulic station begins flowing into the system, construction of Sir Adam Beck II begins. These stations are the cornerstones of Ontario Hydro's hydraulic system and still produce electricity today for less than a penny per kilowatt hour

1930s
Ontario Hydro develops first insulated water heater setting new standards for energy saving water storage

1940s
About 25 per cent of Ontario Hydro's production goes into the war effort. After the war Ontario Hydro forced to restrict power supplies to large industrial customers and municipal utilities as demand for power exceeded Ontario Hydro's supply capability



Doug Gowing polishes a table at the Andrew Malcolm Furniture Company in Listowel, where fine hardwoods are dried in kilns fired by heat pumps. The process uses 40 per cent less energy than the conventional drying.

Today, these elements of electricity service remain important to the customer and to Ontario Hydro. We are always looking for a better way to meet Ontario's energy needs. And right now, just as it was a short decade ago, the better way to meet Ontario's energy needs includes improving the efficiency of electricity use and increasing our efforts to protect the environment. In addition, Ontario Hydro must continue to stay in touch with customers' changing energy needs and values, both to meet their present electricity needs and to anticipate their future needs.

Helping our customers use energy efficiently today continues to be a commitment of some magnitude. What is important to one customer is not necessarily as important to another. Some customers value comfort and convenience first, some prize guaranteed reliability, others want environmental protection at all costs, while still others are concerned mainly with lowering their energy bills. Most believe all the above are important; hence the need for Ontario Hydro to provide a service that balances these various priorities.

To do that, Ontario Hydro, with our municipal electrical utility associates, is increasing the flexibility of services offered. We are increasing numbers and types of energy service so that electricity consumers can determine for themselves where, when and how they will use their electricity.

1950s
Ontario Hydro standardized entire province on 60 Hertz frequency for more efficient and versatile electricity supply.

1960s
Insulation and vapour barriers promoted as part of "Live Better Electrically" campaign. Today, these efforts have resulted in thousands of well-insulated, energy efficient electrically heated buildings and homes.

1970s
Nuclear stations come into service generating electricity safely and economically.
Ontario Hydro undertakes all appliance testing for federal government's Energuide program. To date, customers have saved approximately $1.2 billion dollars in energy.

1980s
Ontario Hydro emphasizes better energy management through more energy efficient appliances and more flexible energy options such as cogeneration.
Planning for future energy needs begins.

Right now we offer a number of energy management options that increase energy efficiency and give customers better value for every energy dollar. These options include residential water heating, heat pumps, commercial radiant heat, industrial plasma induction technologies, and industrial electrochemistry.

We are also exploring the possible application of other options like time-of-use rates, strategic conservation, load management, industrial cogeneration and renewable energy alternatives such as solar power. As we continue to know more about our customers' energy needs and values, we can develop more and better programs tailored to satisfy their specific energy requirements.

Similarly, as we continue to learn more about our environment our environmental protection programs become more effective. Ontario Hydro has always worked hard to maintain water quality, to preserve lands and to protect fish populations and wildlife that might be affected by its operations. We are also making every effort to continue reducing sulphur and nitrogen oxide emissions, the gases from our coal-burning stations that contribute to acid rain.

Michael Mokohonuk (left), plant foreman at E. B. Eddy's Pulp and Paper Mill in Espanola, and Rolly Racicot, Customer Service Supervisor at Ontario Hydro's northeastern regional office, inspect a finished roll of paper. E. B. Eddy now produce their own electricity with hydraulic generators. They have also approved the purchase of a 25 MW steam turbine to complete their cogeneration project.

Our efforts are becoming more effective; acid gas emissions have declined by 37 per cent over the last two years. We will continue to improve our environmental protection programs while maintaining reasonable electricity rates and reliable service to meet the demands of today's electricity customer.

But Ontario Hydro's commitment doesn't end with satisfying the needs of today's electricity customer. We must anticipate also the needs of tomorrow's electricity customer. And we cannot do that without consulting first with the people of Ontario.

Since the late 70s, Ontario Hydro has been building a reputation as a corporate leader in consulting with the public about the planning, building and operating of its power facilities. At present, as part of our planning for Ontario's future energy needs, we are in the process of conducting a comprehensive public consultation program including discussions with provincial community leaders and dozens of provincial organizations.

Meeting our customers' energy needs while respecting their values is very important to Ontario Hydro. Whether it is encouraging energy efficiency, protecting the environment, or ensuring a secure supply of electricity for the future, Ontario Hydro's search for a better way to meet Ontario's energy needs is more than a series of programs or processes. It involves an attitude basic to all of Ontario Hydro's activities, and a dedication to customer satisfaction.

Chairman's Message

Chairman Tom Campbell at the official opening of the Municipal Electric Association's new head office in Toronto.

At Ontario Hydro, customer service and satisfaction is a tradition. Eighty years ago, Adam Beck, Ontario Hydro's first chairman, made a commitment to provide the people of Ontario with a reliable supply of power at cost. Over the years, that commitment has remained fundamental to all of our activities, and is the foundation of customer satisfaction.

To provide electricity at a cost and in a manner that our customers find acceptable, we must continually strengthen our relationship with our customers. Only by staying in touch and evolving with the changing needs and values of our customers can we sustain and improve the quality of our service.

Today, Ontario Hydro, together with the municipal electrical utilities, serves over three million customers with different energy needs and priorities. These needs and priorities must be balanced with Ontario Hydro's overall responsibility to supply the people and economy of Ontario with a reliable source of low-cost electricity.

During 1986, with a strengthening economy, the demand for electricity increased by 3.7 per cent. Electricity demand is expected to continue growing as the economy grows, even though electricity is being and will be used more efficiently. A reliable and low-cost electricity supply, as well as energy efficient electrical applications, are very important to Ontario as they help attract new investment to the province. In the past few years alone, the number of automotive manufacturing plants locating in Ontario has increased significantly.

Ontario Hydro must also ensure a secure supply of electricity for the future. With the completion of the Darlington Generating Station in 1992 and the high-voltage transmission facilities in eastern and southwestern Ontario, we will have enough electricity to meet our customers' most probable demand for electricity through to the late 1990s. However, careful planning takes time, so we have started looking at our customers' probable needs beyond the 1990s. During 1986, Ontario Hydro, with customer consultation, proceeded with a major study of demand and supply options for meeting future electricity needs. This study, when complete, will lay out the options of electricity supply for Ontario well into the twenty-first century.

To meet our customers' needs now and in the future, we rely on the skill, dedication and commitment of Ontario Hydro's people. I would like to thank all of our employees, as well as our Board of Directors and our partners, the municipal electrical utilities, for helping us to serve the electricity consumers of Ontario.

Serving our customers well has always been important to Ontario Hydro. Over the years, good service has become more complex and now extends far beyond restoring electrical interruptions quickly. Today, customer satisfaction depends upon our ability to provide an electrical energy service that not only improves working and living conditions, but also reduces electricity bills and energy consumption. To do this, we must get to know our customers and their energy needs better.

From left to right: Arvo Niitenberg, Executive Vice-President, Operations; Sam Horton, Executive Vice-President, Human Resources, Engineering and Services; Ted Burdette, Executive Vice-President, Finance and Planning, and Robert Franklin, President.

This year, Ontario Hydro continued translating what it is learning about customers' expectations into several new programs designed to increase the flexibility of our services. We introduced the Energy Advisory Service to help householders use electricity more efficiently. A new department was established to assist industrial customers better. We are working more closely with industrial customers in all regions of the province, looking for ways to improve their electricity service, and increase their industrial competitiveness through the application of energy efficient electrical processes. In short, Ontario Hydro is working toward becoming as much an energy consultant as an electricity producer and distributor. Helping our customers use electricity efficiently has become a vital element of good service.

Affordable electricity rates is another important element of good service. We have always believed that, and our customers continue to tell us that. Ontario Hydro's ability to keep rates low and reliability high is a testament to the efficiency and effectiveness of our operations and management.

The Corporation's actions to improve and broaden its customer services took place in a stable financial environment. Total revenues for the year were higher than in 1985 but net income dropped because of increased financing charges as new generating facilities were brought into service and because of reduced exports. Both the amount and price of electricity exported to the United States dropped sharply because of falling oil prices and strong competition among Canadian utilities. The decline in net income in 1986, however, has not affected Ontario Hydro's ability to meet its interest payments or debt repayment obligations. Ontario Hydro's annual investment in fixed assets has steadily decreased since 1982 with cash from operations continuing to represent a significant portion of that investment. This trend toward greater internal financing is expected to continue as current major capital programs near completion.

I'd like to thank all Ontario Hydro employees for their continuing commitment to the people of this province, as well as their personal support during my first year as President. Their efforts have maintained Ontario Hydro's reputation as a world-class electric utility that does more than keep the lights on.

At Bishop Scalabrini Catholic School in York Region, electrical rooftop heat pumps heat and cool the twenty-classroom building at a cost far below the projected energy budget for conventional energy sources. In fact, as a result of reduced energy costs, the school's operating costs are among the lowest in York Region.

"The school is quiet and has the most comfortable environment I have ever experienced. The air inside the classrooms is always fresh and the even temperature is conducive to happier and more responsive attitudes in the students."

Charles McCarthy
Principal

Year in Review

In 1986, as the provincial economy continued to improve, the primary demand for electricity increased by 3.7 per cent.

Ontario Hydro's rural retail system alone added more than 18,000 new customers, bringing the total number to 813,189. This 2.3 per cent increase in the number of rural retail customers continues the upward trend of the past five years. In all, Ontario Hydro delivered 126.6 billion kilowatt-hours of electricity to its customers, including 6.0 billion kilowatt-hours supplied to utilities outside of Ontario, chiefly in the United States.

Peak demand also climbed. Since large amounts of electricity cannot be stored, Ontario Hydro carefully monitors consumption peaks so that the utility can supply its customers on the coldest, darkest evenings of the year. The 1986 peak demand was 20.7 million kilowatts.

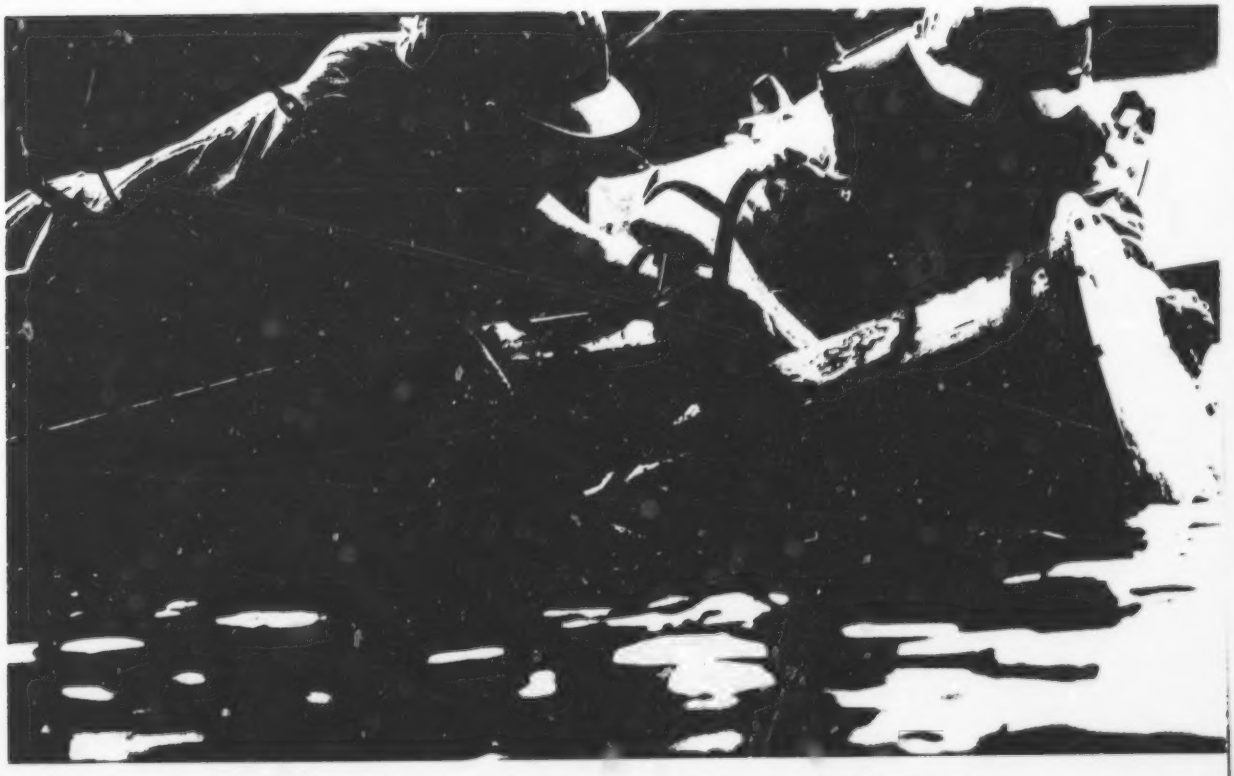
Ontario Hydro produces the electricity required by its customers from three primary sources: falling water, uranium and coal. In 1986, water power supplied 29.4 per cent of the total energy resources, for a total of 37.2 billion kilowatt-hours. The average kilowatt-hour produced from existing hydraulic stations costs .86 cents. As most of Ontario's water power was developed before 1960, few opportunities for developing additional large and economical hydraulic stations now exist in the province. However, Ontario Hydro is investigating the development of additional small hydraulic sites.

Energy efficient design combined with an energy efficient electric heating system has created a comfortable learning environment year-round for Bishop Scalabrini School children.

Nuclear generation, now Ontario Hydro's principal source of electricity, provided 46.0 per cent of Ontario's electricity, for a total 58.2 billion kilowatt-hours. Nuclear generated power helps keep Ontario Hydro's electricity rates low. A kilowatt-hour of nuclear power costs an average 3.0 cents, compared with an average 4.73 cents from a coal-burning unit.

Coal-burning plants are Ontario Hydro's third major source of power, supplying 18.9 per cent of the province's electricity in 1986 for a total of 24 billion kilowatt-hours. These plants provide Ontario Hydro with the flexibility required to respond to fluctuations in peak load or outages at other generating plants.

In addition to generating electricity, Ontario Hydro buys power from other utilities, chiefly from Quebec and Manitoba to help meet customer demand. In 1986, these purchases provided 5.7 per cent of Ontario Hydro's electricity requirements, or 7.2 billion kilowatt-hours, at a cost of $128 million. In October, the Corporation announced an agreement with Hydro Quebec to purchase up to 1200 megawatts of electricity, as required, between December 1986 and March 1987. This agreement also allows Ontario Hydro to strengthen reliability in the eastern part of the province's power system for 1987.



Ontario Hydro researchers demonstrate to Hydro Quebec the use of a "fish pulsar" in repelling juvenile American chad. Ontario Hydro pioneered the design which uses sound to divert or guide fish away from water intakes to areas of safe passage.

While Ontario Hydro's construction program has been winding down since 1982, Ontario Hydro's construction activity was marginally higher in 1986 than in 1985. Purchases of goods and services for construction and operations increased by $57 million to $1,034 million. Contract awards rose from $712 million in 1985 to $794 million. In total, 81 per cent of these orders were placed with Canadian companies, mostly in Ontario.

As would be expected, as Ontario Hydro's construction program declines, its need for long-term financing diminishes. Between 1982 and 1986, net borrowings dropped from $2,172 million to $1,710 million.

Assuring Reliability

During 1986, Ontario Hydro's employees coped with several unexpected disruptions to the electrical system. On March 10, freezing rain across much of southern Ontario led to "flashovers" on the 500-kilovolt transmission system and forced a cut in the output from the Bruce Generating Stations. The loss was largely overcome by increasing the output from other generating resources and purchasing power from neighbouring utilities. Interruptions occurred only for those industrial customers whose contracts permit the curtailment of supply.

In July, a tornado touched down in Haliburton County, leaving 6,000 customers without electricity. Crews from Minden and several neighbouring areas repaired the damaged lines. On August 7, Ottawa's Centretown was blacked out by a fire in the Slater Transformer Station. Ontario Hydro and Ottawa Hydro staff restored power to about half the interrupted customers from adjacent stations within four hours. Full service was restored 56 hours

after the initial disruption despite difficult circumstances and adverse weather conditions. Ontario Hydro, with the help of the local municipal utilities, began extensive studies into the incident to reduce the probability and duration of a total station interruption to a level as low as is reasonably achievable.

Keeping Rates Reasonable

Ontario Hydro works hard to keep its operating costs minimal to keep electricity rates as low as possible, while meeting its commitment to provide dependable service. The 1987 average rate increase of 5.5 per cent, announced in the fall of 1986, keeps our rate levels among the lowest in the world. The cost of electricity in this province is below power rates in most North American cities, and virtually all European and Far Eastern countries. By keeping rates reasonable, Ontario Hydro also helps Ontario attract and maintain industrial development and economic activity.

Talking with Our Customers

Ontario Hydro's interest in understanding the needs and values of its customers better was demonstrated in 1986 through an array of customer-oriented activities, many of them connected with the Corporation's study of meeting Ontario's future energy needs.

Initiated in 1984, this study will guide Ontario Hydro's planning decisions for the next several years, and includes extensive surveys of public views and direct consultations with the public. The largest single customer-attitude survey in Ontario Hydro's history involved face-to-face interviews with 1,200 residential, 200 commercial and 200 industrial customers. Customers ranked reliable service, reasonable rates and environmental protection as priorities in that order. In another survey, Ontario Hydro asked over 800 customers for their views on meeting Ontario's electricity needs in an environmentally sound manner. The survey asked the customers what tradeoffs they were prepared to make to meet the reliability and price objectives. Overall, customers responded that protecting the environment was as important as a reliable, low-cost electricity supply.

Also as part of this future needs study, Ontario Hydro continued to meet with public interest groups, provincial community leaders and municipal utilities to explore a broad range of concerns.

In addition to its own public consultation programs, Ontario Hydro officials appeared before a number of hearing bodies, including the Ontario Energy Board, the National Energy Board, and the Joint Board under the Consolidated Hearings Act. Ontario Hydro also appeared before the federal Special Committee on Acid Rain in May 1986. As well, the Corporation appeared before the Select Committee on Energy established by the provincial legislature. In August, the Ontario Cabinet approved two of the Select Committee's chief recommendations: completion of Darlington Generating Station; and the establishment of an independent review of the safety of the design and operation of the CANDU reactor. During 1986, Ontario Hydro spent approximately 90,600 hours, or 60 person-years, and almost $6 million participating in public hearings.

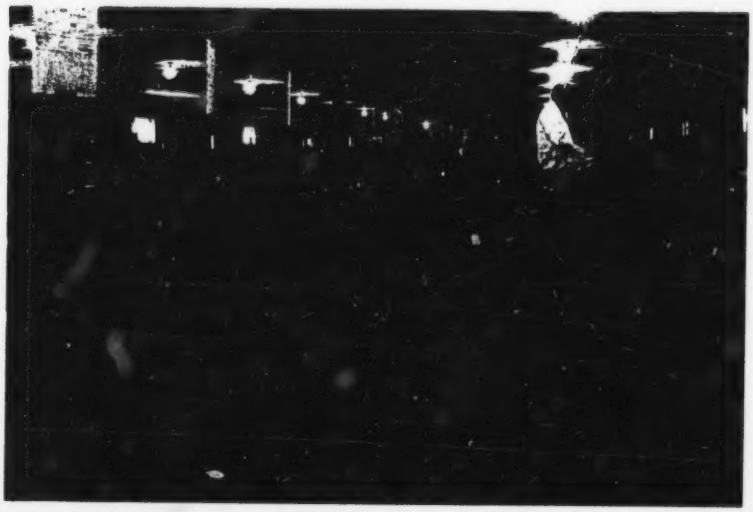
Average Cost of Generation

Ontario Hydro marketing representative, Madelon Gordon, (left) consults with Willie Casteels of Port Perry. Mr. Casteels has installed infrared electric brooders to raise his 230,000 broilers. The result has been more precise heat control, higher productivity, and lower costs.

"We heat our barns electrically. Right from the start we have, part of the reason being that it is a very versatile product. It is also a reasonable-cost energy source."

Will Nap
Napri Farms

The Corporation's contact with the public increased in other areas. More than 85,000 people visited Ontario Hydro's information centres located at the Bruce, Darlington, Lakeview, Lambton, Nanticoke, Niagara Falls, Pickering, Saunders, and Thunder Bay Generating Stations. Ontario Hydro's Speakers' Bureau arranged 531 speaking engagements to community, business and service groups throughout the province. Ontario Hydro also prepared a sequel to the well-received videotape series "Watts Up."



Ontario Hydro works closely with agricultural customers to improve electrical energy use in farming operations. Will Nap of Thornton (right) with the help of Harold Parker decided electricity was the most effective heating source for the farrowing operation on his pig farm.

Meeting Our Customers' Electricity Needs

Nuclear Generation

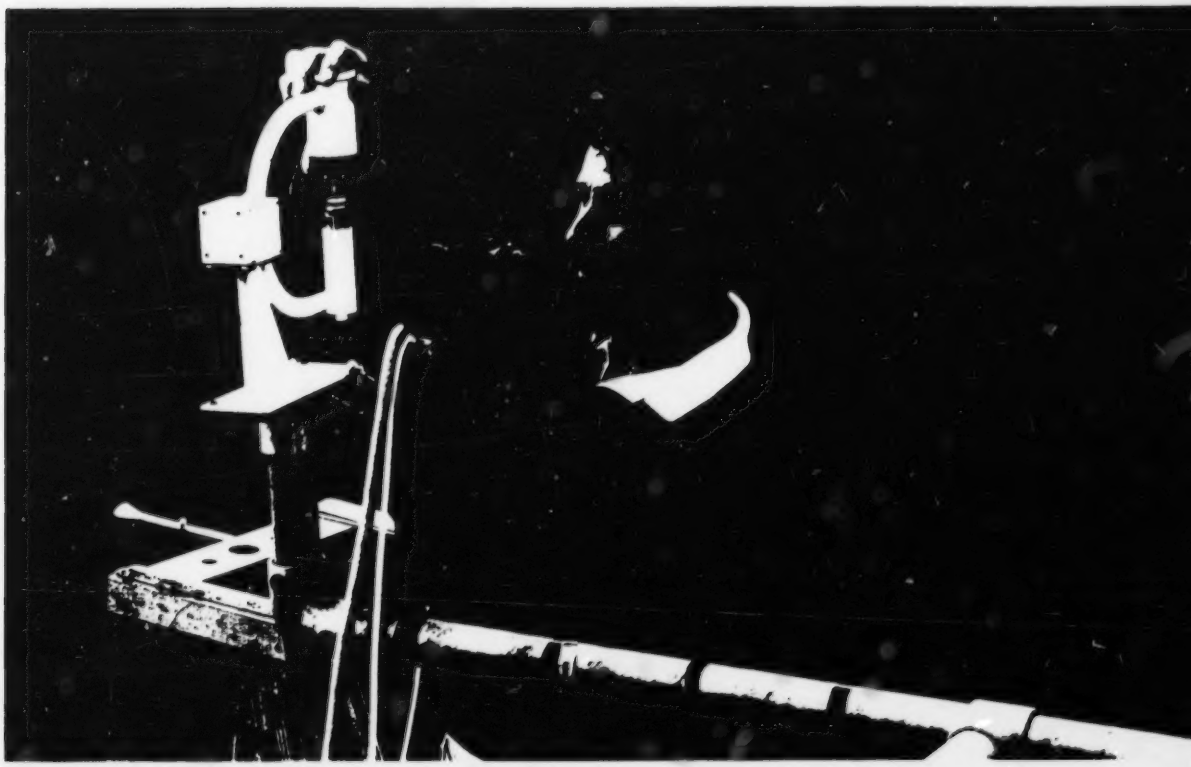
Ontario Hydro's nuclear energy program continues to be safe and economical. During 1986, work progressed on several facilities in place or under construction.

The most active site was Darlington, where the station's first reactor is scheduled to come on stream in 1988. When it is finished, Darlington will provide 3,600 megawatts, enough power to meet the needs of a population the size of metropolitan Toronto. All Darlington units are scheduled to be in service by 1992.

Darlington will also house Ontario Hydro's new Tritium Removal Facility. Tritium, a mildly radioactive isotope of hydrogen, gradually accumulates in the heavy water used in operating Canadian deuterium uranium (CANDU) reactors. The process of isolating and extracting tritium from tritiated heavy water will increase the safety of our CANDU station employees. This facility should begin operating in 1987.

In 1986, the Atomic Energy Control Board granted Ontario Hydro a licence for the design and manufacture of containers for the bulk transportation of tritiated water. The Tritiated Heavy Water Transport Package, as it is called, holds 5,000 litres and will be used when the Tritium Removal Facility at Darlington begins operating. The AECB also granted Ontario Hydro a licence for the design and manufacture of containers for the bulk transportation of used nuclear fuel.

On February 28, Unit 8 of the Pickering Nuclear Generating Station was declared in service. This station, on the shore of Lake Ontario, now has a total capacity of 4,300 megawatts. Units 1 and 2, however, have been shut down since 1983, when cracks in pressure tubes were discovered. By the end of 1987, all pressure tubes in both units will have been replaced and the units returned to service.



Ontario Hydro technician Grant Edwards installs a Lyman-Alpha hygrometer to check acid rain deposits north of Toronto. Careful monitoring is essential in tracking Ontario Hydro's progress in reducing sulphur and nitrogen oxide emissions.

Work on the Bruce Generating Station "B" near Lake Huron, also approached completion. Unit 7 came on line in April 1986, and the final reactor, Unit 8, should begin delivering power by mid-1987.

Nuclear Safety and Performance

The accident in April at the Soviet Union's Chernobyl nuclear station raised a number of questions about the design and operation of Ontario Hydro's nuclear stations. Ontario Hydro provided extensive information to the public and media on plant design, the intensive training of Ontario Hydro's nuclear staff and Ontario Hydro's commitment to worker and public safety.

Unlike Chernobyl, Ontario Hydro's nuclear generating stations have fast shutdown and vacuum systems which ensure safe operation and prevent emissions from escaping into the atmosphere. CANDU units also rely on heavy water, rather than the inflammable graphite used at Chernobyl to moderate fission in the reactor's core.

CANDU reactors have distinguished themselves as the best in the world. At the end of 1986, four Ontario Hydro CANDU units ranked in the top 10 in lifetime performance among 277 commercial reactors worldwide.

One of the most important safeguards at Ontario Hydro's nuclear stations is the well-trained people who run these facilities. The training program for our nuclear operators is lengthy and rigorous, and makes extensive use of control

room simulators. This year Ontario Hydro completed a retrofit of the Bruce "A" training simulator, declared the Bruce "B" training simulator in service, and continued upgrading the Pickering "A" simulator. The Darlington simulator will be delivered by mid-1987.

Ontario Hydro's nuclear employees' record for working safely is excellent. In 1986, these employees extended their record to 32 years without an on-the-job fatality. Furthermore, in 1986 the total units of radiation received by the Corporation's nuclear operating staff remained low, even though the energy output of our nuclear stations increased substantially.

Coal-fired Generation

Coal-fired stations play a unique role in Ontario Hydro's generation mix, supplying the additional power required when all available nuclear and hydraulic units are running. This is especially vital during the peak demands of winter.

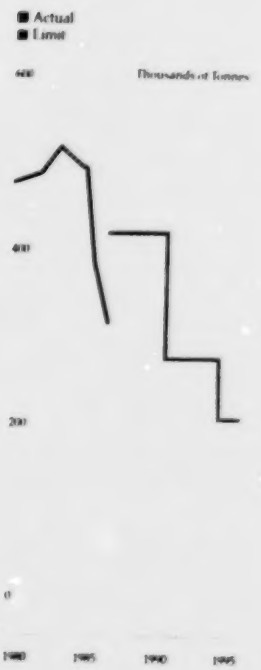
Ontario Hydro is examining the merits of refurbishing some of its older coal-fired generating stations. For example, a study is in progress on the cost-effectiveness of rehabilitating the 25-year-old Lakeview Generating Station in Mississauga to increase its reliability and extend its service life.

Even as it works to meet Ontario's growing demand for reliable, reasonably priced electricity, the Corporation is mindful of its responsibility to minimize the effect of its operations on the environment. Ontario Hydro's acid gas reduction program is significantly lowering levels of sulphur dioxide and nitrogen oxide emissions. In 1986, emissions totalled 320,000 tonnes, about 19 per cent below 1985 levels and 37 per cent below 1984 levels. Ontario Hydro is cooperating with provincial government regulations limiting emissions to 215,000 tonnes by 1994 – 60 per cent below the 1982 peak levels.

The Corporation's multi-faceted acid gas control program is flexible, designed to achieve reductions at the lowest possible cost to its customers. Measures include washing coal to lower its ash and sulphur content; burning lower sulphur coals; relying on more nuclear generated power; purchasing electricity from neighbouring utilities; and installing low nitrogen oxide burners at the Nanticoke Generating Station. There, a 35 per cent reduction in nitrogen oxide emissions for the five units retrofitted to date has been achieved with only minor losses in combustion efficiency. The program will continue through 1987 and 1988 with the conversion of the last three units.

As well, Ontario Hydro is considering scrubbers (devices that remove sulphur dioxide from flue gases). Over the next three years, we are spending $7.7 million for work required to obtain approval under the Environmental Protection Act to install flue gas desulphurization (FGD) equipment as needed at our three largest thermal generating stations. Four potential processes will be evaluated: limestone injection; a lime spray dryer process; a limestone dual alkali process; and wet limestone scrubbing. The plan is to have an appropriate technology approved and ready for installation to meet the Ontario Government acid gas regulations beyond the mid-90s. Ontario Hydro has more than satisfied the government's current regulations and is confident that it will continue to do so.

Acid Gas Emissions



As part of the renovation of Elora Mill, a 140-kilowatt hydraulic generator was installed to serve the Mill's electricity needs. This parallel generation project will pay for itself in eight years, and was part of the Ontario Ministry of Energy's mini-hydro program.

"Generating my own power has worked out well. I use approximately two-thirds of what I produce and sell the rest. It has taken about three years to smooth out this project. Both Ontario Hydro and Elora Hydro have been very cooperative."

Crozier Taylor
Owner
Elora Mill

Hydraulic

During 1986, the Corporation continued to explore the possibility of establishing or expanding hydraulic facilities at sites on the Little Jackfish, Mattagami and Niagara Rivers.

A hydraulic station on Little Jackfish River, which flows into Lake Nipigon, would produce 132 megawatts and could be in service as early as 1993. Studies are in progress to assess the project's environmental effects. Plans to construct additional facilities on the Mattagami River must await the outcome of Ontario Hydro's negotiations with a private company for the Smoky Falls water rights. Meanwhile, Ontario Hydro is exploring the possible environmental effects connected with the Mattagami proposal. The Corporation is also investigating the possibility of making more efficient use of the water in the Niagara River, possibly by adding a third station.

Elora Hydro-Electric Commission representative Art Hoffer (far left), Harold Chambers (middle left) and Ontario Hydro representative Ken Dougan (far right) worked with the Mill's owner, Crozier Taylor (middle right).

In addition, Ontario Hydro worked on several hydraulic stations, including Stewartville and Crystal Falls, to extend their service lives. As well, a preliminary engineering study on redeveloping the Big Chute Generating Station was initiated.

Alternate Energy Options

While hydraulic, nuclear and coal remain the primary sources of Ontario Hydro's electricity supply, the Corporation is exploring a broad range of other options such as small hydraulic development, cogeneration, and wind and solar energy.

Ontario Hydro is encouraging the private development of small hydraulic sites and has formed a task force to assist interested individuals and firms. As well, Ontario Hydro is working to make the cogeneration of electricity a more attractive prospect for Ontario companies. Typically, cogeneration involves the production of heat and electricity from a single fuel source. In Ontario, pulp and paper industries could be chief participants in cogeneration applications. Discussions with pulp and paper firms indicate that more than 100 megawatts of their electricity demand might be met through cogeneration.

Wind and Solar Energy

For Ontario, wind-generated electricity is practical only in a few northern settlements, where air currents are strong and the cost of other power sources is high. This year, after extensive tests, Ontario Hydro began installing a 60-kilowatt wind turbine in Fort Severn, a remote native community in northern Ontario. This turbine is paired with a diesel generator, which relies

At McConnell Lake control dam, technicians Don Fraser (left) and Al Morton lower a pendulum to measure structural changes within the body of the dam. Ontario Hydro's dam safety program monitors structures carefully to ensure that changes due to fluctuating temperatures and water levels are within acceptable limits.

A second experimental program also came to fruition in 1986 with the construction of Canada's largest solar-powered generator. Ontario Hydro erected a 10-kilowatt photovoltaic system in the community of Big Trout Lake in northwestern Ontario. Both the photovoltaic cells and the invertor, which converts the array's direct current to alternating current, were manufactured in Canada.

Delivering Electricity

In addition to generating electricity, Ontario Hydro must be able to deliver electricity where it is needed, when it is needed. During 1986, Ontario Hydro continued to seek approval to expand its transmission systems in all sections of the province. In southwestern Ontario, hearings concluded on the routing of three 500-kilovolt lines. These lines are needed to permit the full output of the Bruce Generating Station to supply customer demand, improve the reliability of supply in southwestern Ontario, and facilitate electricity interchanges with Michigan. The Hearings Board approved a plan in early 1987.

In the north, the construction of a new 500-kilovolt line between Hanmer Transformer Station, north of Sudbury, and Mississagi Transformer Station, west of Elliot Lake, is well under way. This link, which will operate initially at 230-kilovolts, should be finished by December 1987.

Route selection studies have started to locate a new direct current transmission line between [illegible] and Thunder Bay. This new line will [illegible]

In eastern Ontario, progress was made toward building two 500-kilovolt lines between the Lennox Generating Station, near Kingston, and Hawthorne Transformer Station just outside of Ottawa. By year-end, tower layout and field construction had begun for the first line, which is scheduled for service in October 1989. Ontario Hydro has received approval for a future 500-kilovolt line from St. Lawrence Transformer Station, near Cornwall, to Hawthorne Transformer Station.

East of Toronto, construction proceeded on a second 500-kilovolt line from the Darlington Generating Station to Cherrywood Transformer Station. This line is scheduled to begin service in mid-1987.

Lise Belanger, one of Ontario Hydro's foresters, trims trees away from distribution lines in Timmins.

Ontario Hydro's People

Overall staff levels at Ontario Hydro are expected to be relatively stable over the next few years, at about 24,000. The decrease in staff associated with the decline in design and construction activity is being offset by increasing staff levels required to support growing production and distribution functions. This shift in staff requirements is being managed successfully as shown by a 100 per cent redeployment rate for staff declared surplus in 1986.

1986 was not a bargaining year for the contract between the Corporation and the Ontario Hydro Employees Union (OHEU); however preparations for the 1987 negotiations began. As well, in 1986, Ontario Hydro successfully negotiated 18 collective agreements covering employees involved in construction work for the bulk power system.

Another development affecting many of Ontario Hydro's people is the drive for certification of the Society of Ontario Hydro Professional and Administrative Employees. This group, representing some 6,600 administrative, supervisory, engineering, and other professional staff, filed its application to become a certified trade union with the provincial Labour Relations Board in November.

This year, the Corporation continued its efforts to improve the working relationships between employees, their representative bodies, and management. Last year, Ontario Hydro launched the Working Relationships Program. The first results of that initiative were announced in April 1986 when a team of consultants presented a report on working relationships at Ontario Hydro. The Corporation is working on putting the report's recommendations into practice.

Affirmative Action

During 1986, Ontario Hydro's affirmative action initiatives continued to facilitate the movement of qualified women into non-traditional and managerial occupations. Women entering traditionally male-dominated trade, technical and operating occupations increased to 346 from 294. The number of women in Management and Professional positions increased to 531 from 445.

Jerry Goreski (left) of General Motors and Doug Tideman of Ontario Hydro examine the new automated guided vehicle system at this truck plant in Oshawa. Using the latest electrotechnologies, the system incorporates state-of-the-art quality control and improves productivity.

"Expanding our facilities in Oshawa doubled our electricity requirements. We really appreciated the ability of Ontario Hydro's people to supply us with power when and where we needed it to meet our expansion deadlines."

Bill Sterling
Director, Plant Engineering
GM Canada

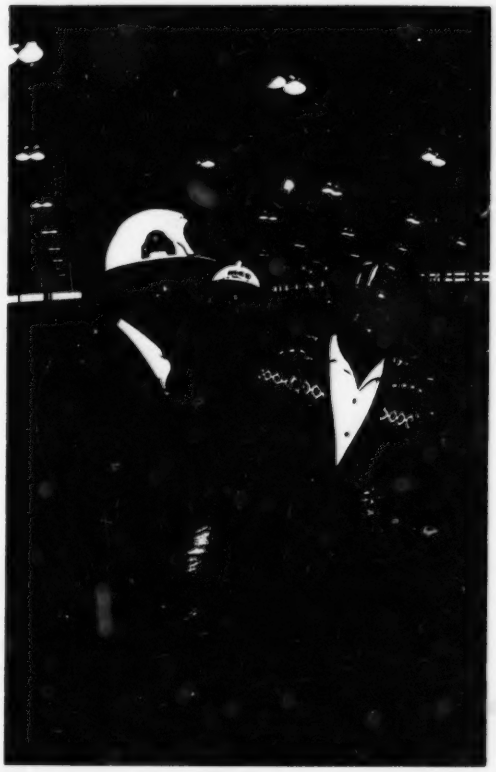
And the number of women in Executive Salary Roll positions rose to 19 from 10. Of the total staff, 4,251 were women compared with 3,968 women last year.

This year, Ontario Hydro's Affirmative Action Department also organized and hosted an affirmative action conference. Eighty people representing company employees and affirmative action practitioners from across Canada met to discuss issues related to current affirmative action activities.

Ontario Hydro was also one of four companies to win a 1986 Employment Equity Award presented by the provincial government for affirmative action efforts.

Employment Health and Safety

Ontario Hydro continued its unwavering efforts to keep its workplace safe. A number of this year's accomplishments deserve mention. For the second consecutive year, there were no on-the-job fatalities or permanent total disability accidents. As well, the Darlington construction project became the first major construction site ever to receive a three-star rating from the International Loss Control Institute for the quality of its safety program. Also, the Health Services Department completed an epidemiology study of forestry tradesmen and concluded there is no evidence of increased cancer mortality risk associated with long-term employment in the forestry trade. In another area, an extensive, three-year study of computer visual display units concluded that there was no evidence of any serious health risks from the units. And Ontario Hydro is working toward smoke-free offices by the end of 1987.

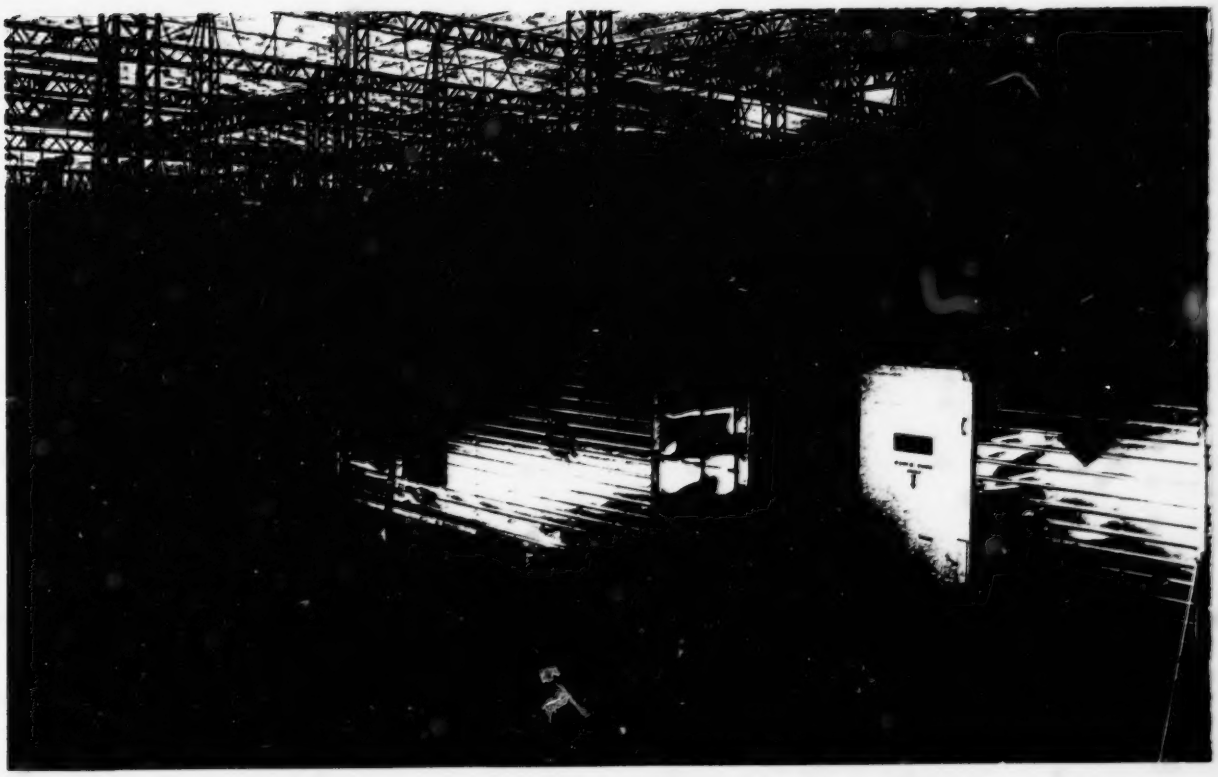


Lloyd Strong (left) and Mick Throssell (middle) of INCO and Tom Armstrong of Ontario Hydro discuss using electricity to increase production capacity in ore-crushing operations. A demonstration project at INCO's Clarabelle Mill in Sudbury has been funded by INCO, Ontario Hydro, the Ministry of Energy, and REXNORD Limited to confirm the benefits of variable speed drives in on-line crushers.

Becoming More Customer Oriented

Ontario Hydro's marketing program was established as a separate service three years ago to help facilitate the Corporation's strong commitment to customers. Ontario Hydro, with the help of our largest customer group, the municipal utilities, serves a broad range of electricity consumers, including some 3,241,000 householders, farmers, cottagers, commercial customers and industrial firms. The Corporation's marketing efforts are aimed at responding to customers' needs and helping them use energy efficiently.

Ontario Hydro broadened the range of programs it offers customers under the EnerMark label. EnerMark, launched in 1985, provides a common identity for all members of the electrical industry including the utilities, contractors, manufacturers and consultants promoting the wise use of energy in Ontario. Among the new or ongoing EnerMark projects in 1986 were a loan program for homeowners, a toll-free enquiry line, and information booths at various major exhibitions around the province.



At Dorval, Ontario Hydro demonstrates to Hydro Quebec its newly developed process for converting PCBs, recovered from electrical insulating oils, into harmless compounds. Because the process is mobile, the PCB trailer can eventually be operated for businesses and utilities across the province.

During 1986, the Corporation strengthened several initiatives designed to assist homeowners. The Energy Advisory Service was introduced to build on the activities of Ontario Hydro's Residential Energy Advisory Program (REAP). This service counsels householders on the efficient use of electricity and provides them with a survey of their homes' energy consumption.

The Corporation sought to improve service for homeowners in other ways. Ontario Hydro introduced a new data base system to handle billing and enquiries from retail customers. Staff now can respond far more quickly and fully to questions from rural retail customers. As well, meter readers were issued hand-held microcomputer recorders to replace the old pen-and-paper method of recording meter information. This new system is more efficient because the reader can transfer data directly to Ontario Hydro's central computers. It is also more accurate because of built-in validity checks.

Commercial and Industrial Customers

Other marketing programs were aimed at the commercial market, including offices, retail complexes, schools, hospitals and multi-residential buildings. The Commercial Energy Manual, first issued in 1985, went into a second printing this year as a result of customer demand. The volume, popularly known as "The Source," is a comprehensive guide to electrical design in commercial buildings. Of particular interest to contractors, engineers and architects, it provides useful information on how electricity can be the basis for an efficient energy management system. A second volume, dealing with further commercial applications, will be ready for publication early in 1987.

To a greater degree than ever before, Ontario Hydro's marketing strategy in 1986 addressed the needs of industrial customers. Low-cost, reliable electrical energy has long made this province attractive to new business. The Corporation is determined to maximize that advantage. To this end, during 1986, Ontario Hydro established the Major Accounts Department to provide a primary focal point between Ontario Hydro and the province's large industries. The Department works closely with government to attract new businesses to Ontario and help existing businesses remain competitive.

Another 1986 initiative to increase customer satisfaction was the establishment of the Industrial Marketing Training Program. A comprehensive 12-week course designed in conjunction with the Laurier Institute of Sir Wilfrid Laurier University, it helps marketing and regional staff better understand industrial operations so they can help them use energy as a production component more effectively. More than 40 staff members graduated from this course during the year.

Ontario Hydro is particularly proud of its cooperation with the automotive industry and the role that economical, dependable power has played in bringing new plants to Ontario. Numerous automotive manufacturers, including General Motors, American Motors, Toyota, Honda, and GM/Suzuki, announced plans to build major new facilities in the province or dramatically expand existing centres.

In conjunction with the Ontario Ministry of Energy, Ontario Hydro launched a program to help industry make more efficient use of forms of energy such as electricity, gas and steam through the technology of energy monitoring. Four to six companies will be invited to participate in this demonstration project. Ontario Hydro will help install in each firm an energy monitoring system that will measure the use of various forms of power as well as the output of each profit centre or production line.

Using such detailed information, Ontario Hydro's experts will assist industrial customers in identifying opportunities for increasing productivity. Based on preliminary results, a typical monitoring system will cost $150,000 and have a payback period of one year. Average annual energy savings should be in the order of 16 per cent.

Northern Customers

One area receiving particular attention from Ontario Hydro's marketing staff in 1986 was northern Ontario. For some of the area's major industries such as pulp and paper, steel production and mining, energy bills can account for as much as 15 to 20 per cent of total costs. The Corporation is working closely with these companies to reduce their energy costs through energy management, cogeneration and electrotechnology.

Comparative Electricity Price for Industrial Consumers (1985)

Other Ontario Hydro Services

In 1984, Ontario Hydro consolidated its non-energy related revenue-producing activities in a separate, entrepreneurial unit called the New Business Ventures Division. Its activities benefit all electricity customers within Ontario since net income from these activities is applied against the cost of producing electricity and thus helps to keep rates low.

Sales of the isotopes, Cobalt-60 and deuterium gas, rose sharply in 1986. Ontario Hydro produces about 75 per cent of the world's Cobalt-60, which is used in cancer therapy and the sterilization of medical products. Shipments of this isotope were up 30 per cent over 1985. Moreover, the division has opened markets for another isotope, deuterium gas, which is used in biological research and medical products.

New Business Ventures also provides industrial and utility customers with a means to dispose of polychlorinated biphenyls (PCBs), found in electrical insulating oil, through the use of Ontario Hydro's mobile PCB decontamination unit. This year MPU-1, as the mobile unit is called, successfully completed its first commercial contract, decontaminating 38,000 litres of oil in Nova Scotia. Hamilton-based Rondar Industries Inc. operates the equipment under a leasing arrangement with Ontario Hydro. Approval to operate this unit in Ontario is expected early in 1987.

Ontario Hydro also sells its technological expertise in control room simulators, equipment testing and nuclear services to the United States and countries in Asia and Africa. New Business Ventures' international consulting work has grown substantially, with Ontario Hydro staff working with Canadian consultants and industries around the world. This year, the Corporation secured a major contract for a five-year program to train transmission workers in Egypt. In China, Ontario Hydro technicians are training operators for a coal-fired station being built at Nantung, and are helping build a transmission system in the southwest part of the country. Other Ontario Hydro teams are teaching lines and maintenance workers in Pakistan, providing management training in Ghana, and helping plan energy use in Kenya.

Continuing Customer Commitment

In summary, at home and abroad the watchword for Ontario Hydro is customer satisfaction. The Corporation is determined to provide a dependable supply of electricity at the lowest rates possible, and to remain attuned to the needs and values of its customers. Ontario Hydro's customer orientation was strengthened in 1986, and will continue to shape the Corporation's actions in the future.

Financial Review of Ontario Hydro

for the year ended December 31, 1986

Financial Highlights

Ontario Hydro's activities continue to be directed at achieving its primary purpose of providing the customers of Ontario with electricity at the lowest feasible cost over the long term consistent with high safety and quality of service standards. To accomplish this, Ontario Hydro encourages the effective use of resources and emphasizes productivity improvements and cost control.

Ontario Hydro's total revenues for 1986 amounted to $4,853 million, $228 million higher than in 1985. Approximately $53 million of this increase came from a greater volume of electricity sales, and $175 million from the 1986 rate increase. Total operating costs for 1986, including financing charges, amounted to $4,606 million, an increase of $341 million over 1985. The major factor in this increase in total operating costs for 1986 was new generating units placed in service in 1986 and 1985. To smooth the effect of this overall increase, the 1986 electricity rate increase provided for a level of net income lower than the level for 1985. The net income for 1986 was $247 million compared with $360 million for 1985.

Cash provided from operations and available for investment in fixed assets was $1,040 million for 1986. The capital expenditures for investment in fixed assets during 1986 amounted to $2,523 million. This represents a steady decline from the 1982 level of $2,885 million as a result of the decrease in the level of construction activity.

Results of Operations

Revenues

Primary revenues for 1986 amounted to $4,605 million, an increase of $331 million or 7.7 per cent as compared with 1985. Electricity sales to municipal utilities, rural retail, and direct industrial customers totalled 114,763 million kilowatt-hours. The overall growth rate in the volume of primary energy sales was 3.7 per cent for 1986, reflecting the effect of continued economic growth in the Province of Ontario. In 1986, electricity sales to municipal utilities and rural customers grew more strongly than sales to direct industrial customers. The chart (see page 26) provides the energy consumption by major customer category and an estimate of the energy consumed by market sector. The overall growth rate for 1986 was higher than the average annual growth rate of 3.4 per cent over the last five years.

The 1986 electricity rates for primary customers increased 4.0 per cent on average. The average increases for municipal utilities, rural retail and direct industrial customers were 4.0 per cent, 3.8 per cent and 4.3 per cent, respectively. The rural rate increase takes into account $64 million in assistance provided by all electricity consumers in the province to reduce the electricity bills of year-round rural residential customers.

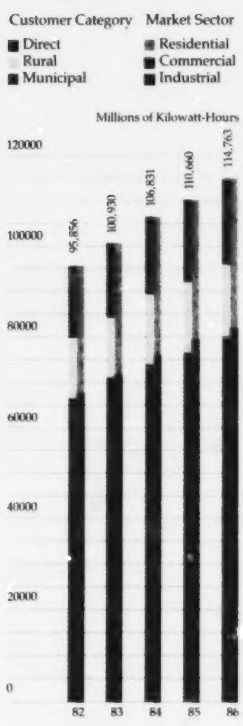
Secondary revenues for 1986, mainly from sales of electricity to United States utilities, amounted to $248 million. Compared with 1985, this represents a decrease of $103 million or 29.3 per cent. This decrease is a result of price competition among Canadian utilities for the midwestern and northeastern U.S. markets and lower oil prices for U.S. electric utilities which makes imports less attractive for them.

Over the last five years, Ontario Hydro has earned approximately $1,895 million in revenues from United States utilities by selling electricity beyond the requirements of its customers in Ontario. The net benefit to Ontario customers was $736 million for the period 1982 through 1986, and $104 million in 1986. This benefit helped Ontario Hydro to keep electricity rates lower for Ontario customers.

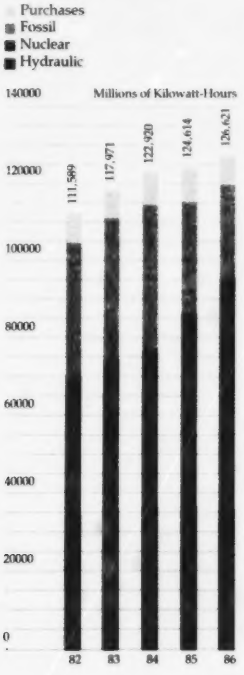
Major Electricity Production Resources

Ontario Hydro responds instantly and efficiently to the energy demands of its customers by supplying electricity from a number of different sources. Hydraulic generating stations, which are relatively inexpensive to operate, have traditionally provided a major part of the electricity energy generated by Ontario Hydro. With most major accessible sites in the province already developed, hydraulic generation, as a percentage of total generation, has gradually decreased over the past few years although the volume of electricity

Primary Energy



Electricity Production



generated has remained relatively stable. On the other hand, the Corporation has increased its emphasis on nuclear generation. This emphasis is part of Ontario Hydro's acid gas emission reduction efforts. The other major source of generation of electricity is fossil generation. Due to the relatively high cost of fossil fuels, Ontario Hydro relies on its fossil-fuelled stations primarily to meet its needs for peaking power. The electricity production resources for the period 1982 through 1986, illustrating the changes in volume and generation mix, are shown in the chart below. The annual average costs per kilowatt-hour of energy by the major generating sources are shown in the Five Year Summary of Financial Statistics.

Fuel and Fuel-related Costs

In 1986, fuel and related costs such as water rentals, power purchased, and the nuclear agreement-payback were 4.7 per cent lower than in 1985. Ontario Hydro's nuclear stations supplied 46.0 per cent of the total energy to the system in 1986. Hydraulic stations supplied 29.4 per cent and fossil-fuelled generation provided 18.9 per cent. Purchases of power from interconnected utilities provided the remaining 5.7 per cent. In 1985, electric energy from nuclear generation, hydraulic generation and fossil-fuelled generation supplied 39.0 per cent, 30.0 per cent and 23.9 per cent, respectively, of the total energy to the system.

The 1986 fuel costs for coal and uranium amounted to $933 million, a decrease of 3.6 per cent over 1985. The decrease is mainly due to the replacement of higher-cost coal by more economical uranium. This more than offsets the effect of the increased volume of electricity generated to meet increased demand and the higher unit fuel costs. The increase in electricity provided from nuclear sources reflects the additional units placed in service in 1986, and also the full year's production from nuclear units placed in service in 1985.

The payments Ontario Hydro makes primarily to the Province of Ontario for the use of provincial waters in its hydraulic plants amounted to $91 million in 1986, an increase of $4 million over 1985.

Electricity purchased from neighbouring utilities amounted to $128 million in 1986, a decrease of $35 million over 1985. These purchases are generally made during peak demand periods or emergency situations so as to maintain a reliable supply of electricity.

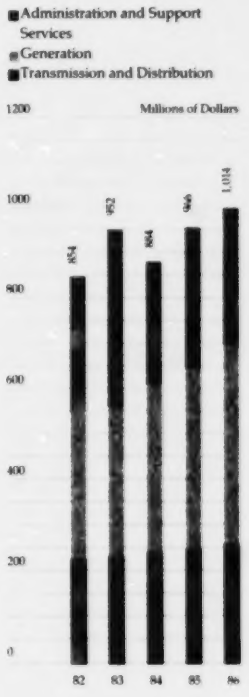
In 1986, units 1 and 2 of the Pickering Nuclear Generating Station were not operating, having been taken out of service in 1983 to replace existing pressure tubes. The maintenance and overhead costs during the shutdown period have been included in the payback calculation according to the Pickering Payback Agreement. As a result, Ontario Hydro was able to reduce its 1986 and 1985 operating costs by $63 million and $75 million respectively, which represents the amount to be offset against future amounts payable by Ontario Hydro to Atomic Energy of Canada Limited and the Province of Ontario, the other two parties to this agreement.

Operation, Maintenance and Administration

The costs associated with the operation, maintenance and administration of the Corporation in 1986 were $1,014 million, an increase of $48 million over 1985. This increase of 5.0 per cent is primarily related to placing new facilities in service, and cost increases due to inflation. The continued emphasis on cost control at all levels of the Corporation is having a positive financial impact on operation, maintenance and administration costs. The in-service capacity of the generation system grew about 5 per cent or 1,277 megawatts in 1986. The major component of this growth is the addition of two nuclear generating units. The transmission and distribution system work-load also grew in 1986, as reflected in an increase of approximately 2 per cent in the number of customers and an increase of about 1 per cent in the kilometres of rural lines maintained. The costs of transmission and distribution, and administration and support services

as a percentage of the total of operation, maintenance and administration costs declined slightly in 1986, while the generation component increased slightly. The chart shows the operation, maintenance and administration costs by major activity for the period 1982 through 1986.

Operation, Maintenance and Administration



Depreciation

The depreciation charged to operations totalled $705 million in 1986, $50 million or 7.6 per cent higher than in 1985. Contributing to this increase were the additional facilities placed in service, including Pickering unit 8, Bruce unit 7, and the full year's impact of Pickering unit 7 and Bruce unit 5 and the Atikokan Generating Station having been placed in service in 1985. This increase was partially offset by two fossil-fuelled generating stations becoming fully depreciated by the end of 1985.

Financing Charges

Financing charges are comprised of interest and foreign exchange costs. Interest charged to operations represents the total cost of borrowing less interest capitalized. This is designed to effect a proper allocation of costs between current and future customers. Foreign exchange mainly represents the amortization of unrealized gains or losses on the principal amount of foreign debt.

Gross interest costs for 1986 amounted to $2,684 million, an increase of $133 million or 5.2 per cent as compared with 1985. The primary reason for this increase is related to the additional funds borrowed during the year to finance the construction of new generating stations which are needed to meet future demand.

Interest charged to operations amounted to $1,585 million in 1986, $260 million or 19.6 per cent higher than in 1985. The increase resulted primarily from placing additional nuclear generating units in service in 1986, and the full year's impact of units placed in service in 1985. The in-service date is the time from which interest is no longer capitalized and is charged to operations.

Foreign exchange costs amounted to $213 million in 1986, an increase of $37 million or 21.0 per cent over 1985. The primary factor contributing to the increase in foreign exchange costs was the effect of a weaker Canadian dollar relative to the United States dollar.

Net Income/Financial Indicators

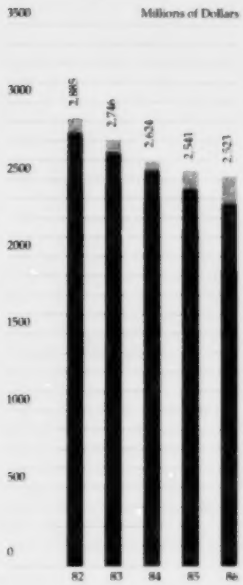
Ontario Hydro earned a net income of $247 million in 1986 compared with $360 million in 1985. Ontario Hydro's main financial indicators are the debt, cash flow coverage and interest coverage ratios. The debt ratio at the end of 1986 was .835 as compared to the 1985 ratio of .830. The cash flow coverage for 1986 was 1.05, the highest level since 1981. The level of interest coverage for 1986 and 1985 were 1.09 and 1.14 respectively. The decrease in net income has not affected the Corporation's ability to meet its interest payments and debt repayment obligations in 1986. The financial position of the Corporation remains strong.

Capital Expenditures and Financing

Investment in Fixed Assets

Ontario Hydro invests in fixed assets to meet expected growth in the demand for electricity, to replace existing assets with facilities that are more economical, and to meet regulatory requirements. The total assets of the Corporation at the end of 1986 were $31,357 million and of this amount, about 83 per cent consists of fixed assets in service and under construction. This relatively high percentage reflects the capital-intensive nature of Ontario Hydro's business.

Investment in Fixed Assets during the Year



The investment in fixed assets during 1986 was $2,523 million. A major portion of the 1986 capital expenditures went toward the construction of new generating facilities. In addition, the 1986 capital expenditures reflect the continued emphasis being placed on investment in transmission and distribution facilities. The expenditures on major capital projects under construction during 1986 and 1985 were:

	1986	1985
	millions of dollars	
Nuclear Generation		
Pickering	34	137
Bruce	279	417
Darlington	1,131	999
Fossil Generation		
Atikokan	–	109
Generating Facilities	1,444	1,662
Transmission & Distribution	422	249

Ontario Hydro placed in service unit 8 at Pickering and unit 7 at Bruce in February and April, 1986, respectively. The total cost was $2,451 million, including $492 million for heavy water.

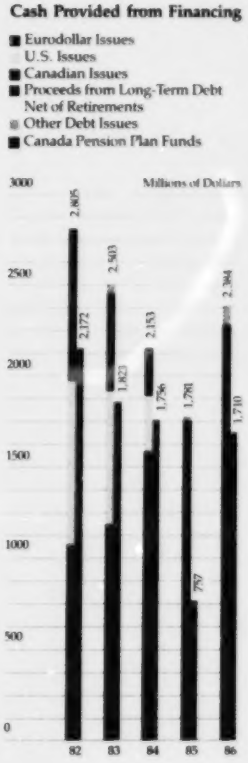
There has been a modest decline in the annual investment in fixed assets from $2,885 million in 1982 to $2,523 million in 1986, as the major generating projects are completed. The expenditures for investment in fixed assets for the period 1982 through 1986 are shown in the chart.

Financing

Cash required by Ontario Hydro to finance the investment in fixed assets is provided from two major sources: cash provided from operations and cash from external borrowings. For 1986, cash provided from operations, and cash from financing were $1,040 million and $1,710 million respectively. Cash from borrowings represents the amount of cash provided from long-term debt less retirements.

The 1986 proceeds from long-term debt, net of retirements, of $1,710 million was $953 million higher than the 1985 amount of $757 million. This increase in the net borrowings is primarily due to the timing of the issuance of debt over the 1986 and 1985 year ends and a reduction in the level of corporate liquidity during 1985. The proceeds from the issue of bonds sold to the public by Ontario Hydro during 1986 amounted to $2,073 million, and the proceeds from the issue of bonds to the Province of Ontario with respect to Canada Pension Plan funds provided a further $119 million. These proceeds were from ten Canadian issues with an average coupon interest rate of 9.2 per cent for an average term of 8.1 years. For the same period in 1985, the average coupon interest rate and the average term of new debt issued were 10.8 per cent and 9.0 years respectively. In addition, a 100 million Swiss franc bank loan (Canadian $84 million) was entered into to refinance a Swiss franc bond issue, and proceeds of $108 million were received from the issuance of long-term notes.

Cash Provided from Financing



Cash provided from financing from 1982 through 1986 is shown in the chart. The principal markets Ontario Hydro has operated in are the Canadian, United States, and Eurodollar public markets. Financing activities for 1986, except for $116 million, were met entirely from the Canadian market and from Canada Pension Plan funds to minimize foreign exchange exposure.

Cash amounting to $321 million was used to retire maturing long-term debt in 1986, compared with $849 million in 1985. In addition, during 1986, cash amounting to $353 million was used to redeem debt prior to maturity, compared with $175 million in 1985.

The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in Canada, applied on a basis consistent with that of the preceding year. The significant accounting policies followed by Ontario Hydro are described below.

Rate setting

Ontario Hydro has broad powers to generate, supply and deliver electric power throughout the Province of Ontario. The Corporation operates under the Power Corporation Act and is subject to provisions of the Ontario Energy Board Act.

Under the provisions of the Power Corporation Act, the price payable by customers for power is the cost of supplying the power. Such cost is defined in the Act to include the cost of operating and maintaining the system, depreciation, interest, and the amounts appropriated for debt retirement and stabilization of rates and contingencies. The debt retirement appropriation is the amount required under the Act to accumulate on a sinking fund basis over 40 years a sum equal to the debt incurred for the cost of the fixed assets in service. The appropriation for, or withdrawal from, the stabilization of rates and contingencies reserve is an amount established to maintain a sound financial position and to stabilize the effect of cost fluctuations.

Under the provisions of the Ontario Energy Board Act, a public hearing before the Ontario Energy Board is required in respect of any changes in electricity rates proposed by Ontario Hydro which affect its municipal utilities, direct industrial customers, or, if the Minister of Energy so directs, rural retail customers. The Ontario Energy Board submits its recommendations to the Minister of Energy. After considering the recommendations of the Ontario Energy Board, the Board of Directors of Ontario Hydro, under the authority of the Power Corporation Act, establishes the electricity rates to be charged to customers.

If the Board of Directors specifies a certain cost or gain is to be included in future electricity rates that, in accordance with the accounting policies summarized below, would be charged or credited to operations in the current year, then this cost or gain is deferred and amortized to future operations on a basis consistent with its inclusion in rates.

Fixed assets

Fixed assets in service include operating facilities and non-operating reserve facilities. Construction in progress includes fixed assets under construction and heavy water held for use in nuclear generating stations under construction.

Fixed assets are capitalized at cost which comprises material, labour, engineering costs, and the costs of training initial operating staff for new facilities as well as overheads, depreciation on service equipment, and interest applicable to capital construction activities. In the case of generation facilities, the cost also includes the net cost of commissioning, and for nuclear generation, the cost of heavy water. The net cost of commissioning is the cost of start-up less the value attributed to energy produced by generation facilities during their commissioning period. The cost of heavy water comprises the direct cost of production and applicable overheads, as well as interest and depreciation on the heavy water production facilities and the estimated removal costs of these facilities. For multi-unit facilities, a proportionate share of the cost of common facilities is placed in service with each major operating unit. Leases which transfer the benefits and risks of ownership of assets to Ontario Hydro are capitalized.

Interest is capitalized on construction in progress at rates (1986 – 12.9 per cent, 1985 – 13.9 per cent) which approximate the average cost of long-term funds borrowed in the years in which expenditures have been made for fixed assets under construction. If the construction period of a project is extended and the construction activities are continued, interest is capitalized during the period of extension provided that the project has a reasonable expectation of being completed.

If a project is cancelled or deferred indefinitely with a low probability of construction being resumed, all costs including the costs of cancellation are written off to operations.

If fixed assets are removed from operations and mothballed for future use, termed non-operating reserve facilities, the costs of mothballing are charged to operations.

Depreciation
The capital costs of fixed assets in service are depreciated on a straight-line basis. Depreciation rates for the various classes of assets are based on their estimated service lives. Major components of generating stations are depreciated over the lesser of the service life expectancy of the component or the remaining service life of the associated generating station.

The estimated service lives of assets for 1986 and 1985 in the major classes are:

Generating stations – hydraulic	– 65 to 100 years
– fossil	– 25 to 35 years
– nuclear	– 40 years
Heavy water	– over the period ending in the year 2040
Transmission and distribution facilities	– 20 to 55 years
Heavy water production facilities	– 20 years
Administration and service facilities	– 5 to 60 years

In accordance with group depreciation practices, for normal retirements the cost of fixed assets retired is charged to accumulated depreciation with no gain or loss being reflected in operations. However, gains and losses on sales of fixed assets, and losses on premature retirements are charged to operations in the year incurred as adjustments to depreciation expense.

When the costs of removal less residual value, termed removal costs, on retirements of fixed assets can be reasonably estimated and are significant, provisions for these costs, except for those related to heavy water production facilities, are charged to depreciation expense on an annuity basis over the remaining service life of the related fixed assets. For heavy water production facilities, provisions for removal costs are charged to heavy water production costs on a straight-line basis over the remaining service life of the related facilities. Other removal costs are charged to depreciation expense as incurred. Removal costs include the estimated costs of decommissioning nuclear stations and heavy water production facilities, and the estimated costs of removing certain nuclear reactor fuel channels.

The estimated service lives of fixed assets and the significant assumptions underlying the estimates of fixed asset removal costs are subject to periodic review. Any changes arising out of such a review are implemented on a remaining service life basis from the year the changes can be first reflected in electricity rates.

Non-operating reserve facilities are amortized so that any estimated loss in value is charged to depreciation expense on a straight-line basis over their expected non-operating period.

Unamortized advances for fuel supplies
As part of its program to ensure the adequate supply of fuels for its generating stations, Ontario Hydro has entered into long-term fuel supply contracts. Where these contracts require Ontario Hydro to make payments for pre-production costs to suppliers in advance of the fuel delivery, these payments and associated costs, including interest, are carried in the accounts as unamortized advances for fuel supplies. The advances are amortized to fuel inventory as the fuels are delivered.

Fuel for electric generation
Fuel used for electric generation comprises the average inventory costs of fuel consumed, charges for commissioning energy produced, and provisions for disposal of nuclear fuel irradiated during the period. The inventory cost of fuel consumed comprises fuel purchases, transportation and handling costs, and the amortization of advances for fuel supplies. Transportation costs include charges for interest and depreciation on railway equipment owned by Ontario Hydro. The charges for commissioning energy produced during the period represent the incremental operating and fuel costs of producing the same quantity of energy at generating units displaced because of the commissioning activity. The costs for disposal of nuclear fuel irradiated in each period are charged to operations based on estimated future expenditures and interest accumulating to the estimated date of disposal. Estimates of expenditures, interest and escalation rates, and the date of disposal are subject to periodic review. Adjustments resulting from changes in estimates are charged to operations on an annuity basis over the period from the year the changes can be first reflected in electricity rates to the estimated in-service date of the disposal facility.

Foreign currency translation
Current monetary assets and liabilities in foreign currencies are translated to Canadian currency at year-end rates of exchange and the resultant exchange gains or losses are credited or charged to operations. Long-term debt payable in foreign currencies is translated to Canadian currency at year-end rates of exchange. Resulting unrealized exchange gains or losses are deferred and included in unamortized debt costs, and are amortized to operations on an annuity basis over the remaining life of the related debt.

Foreign exchange gains or losses on hedges of long-term debt payable in foreign currencies are deferred and included in unamortized debt costs. The deferred gains or losses related to principal payments are amortized to operations on an annuity basis over the remaining period through to the year in which the hedged principal payments are due. The deferred gains or losses related to interest payments are credited or charged to operations in the year in which the hedged interest payments are due.

Foreign exchange gains or losses on early redemption of long-term debt are deferred and included in unamortized debt costs if the exposure in the foreign currency related to the redeemed debt is not reduced as a result of the refinancing of the redeemed debt in the same currency. These deferred gains or losses are amortized on an annuity basis over the period to the original maturity date of the redeemed debt. If the foreign currency exposure is reduced as a result of the early redemption of debt, the resulting foreign exchange gains or losses related to the redeemed debt are credited or charged to operations.

Unamortized debt costs
Unamortized debt costs include the unamortized amounts related to unrealized foreign exchange gains or losses resulting from the translation of foreign currency long-term debt, foreign exchange gains or losses on hedges, foreign exchange gains or losses on the early redemption of long-term debt, discounts or premiums arising from the issuance of debt or the acquisition of debt prior to maturity, and discounts or premiums accrued on foreign currency hedges.

Debt discounts or premiums arising from the issuance of debt are amortized over the period to maturity of the debt. Discounts or premiums on debt acquired prior to the date of maturity are amortized over the period from the acquisition date to the original maturity date of the debt. Discounts or premiums on foreign currency hedges are credited or charged to operations over the terms of the individual hedges.

Nuclear agreement–Pickering units 1 and 2
Ontario Hydro, Atomic Energy of Canada Limited and the Province of Ontario are parties to a joint undertaking for the construction and operation of units 1 and 2 of Pickering Nuclear Generating Station, with ownership of these units being vested in Ontario Hydro. Contributions to the capital cost by Atomic Energy of Canada Limited and the Province of Ontario amounted to $258 million and these have been deducted in arriving at the value of fixed assets in service in respect of Pickering units 1 and 2. Ontario Hydro is required to make monthly payments until the year 2003 to each of the parties in proportion to their capital contributions. These payments, termed "payback", represent in a broad sense the net operational advantage of having the power generated by Pickering units 1 and 2 as compared with coal-fired units similar to Lambton units 1 and 2.

Pension plan
The pension plan is a contributory, defined benefit plan covering all regular employees of Ontario Hydro. Ontario Hydro is responsible for all deficiencies and surpluses in the pension plan. Pension costs, as actuarially determined, consist of current service costs and amounts required to amortize any surpluses or unfunded liabilities. A net unfunded liability arising from past service obligations is amortized up to fifteen years. All other net unfunded liabilities or net surpluses in the fund are amortized up to five years.

Research and development
Research and development costs are charged to operations in the year incurred, except for those related directly to the design or construction of a specific capital facility which are capitalized as part of the facility.

Management's Responsibility for Financial Reporting

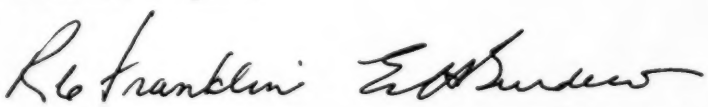
The accompanying financial statements of Ontario Hydro are the responsibility of management and have been prepared in accordance with accounting principles generally accepted in Canada, applied on a basis consistent with that of the preceding year. The significant accounting policies followed by Ontario Hydro are described in the accompanying Summary of Significant Accounting Policies. The preparation of financial statements necessarily involves the use of estimates based on management's judgement, particularly when transactions affecting the current accounting period cannot be finalized with certainty until future periods. The financial statements have been properly prepared within reasonable limits of materiality and in light of information available up to March 9, 1987. The information presented elsewhere in the Annual Report is consistent with that in the financial statements.

Management maintains a system of internal controls designed to provide reasonable assurance that the assets are safeguarded and that reliable financial information is available on a timely basis. The system includes formal policies and procedures and an organizational structure that provides for appropriate delegation of authority and segregation of responsibilities. An internal audit function independently evaluates the effectiveness of these internal controls on an ongoing basis and reports its findings to management and to the Audit Committee of the Board of Directors.

The financial statements have been examined by Clarkson Gordon, independent external auditors appointed by the Lieutenant Governor in Council of Ontario. The external auditors' responsibility is to express their opinion on whether the financial statements are fairly presented in accordance with generally accepted accounting principles. The Auditors' Report, which appears below, outlines the scope of their examination and their opinion.

The Board of Directors, through the Audit Committee, is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal controls. The Audit Committee meets periodically with management, the internal auditors and the external auditors to satisfy itself that each group has properly discharged their respective responsibilities, and to review the financial statements before recommending approval by the Board of Directors. The external auditors have direct and full access to the Audit Committee, with and without the presence of management, to discuss their audit and their findings as to the integrity of Ontario Hydro's financial reporting and the effectiveness of the system of internal controls.

On behalf of Management



President

Executive Vice-President,
Finance and Planning

Toronto, Canada,
March 9, 1987.

Auditors' Report

To the Board of Directors of Ontario Hydro:

We have examined the statement of financial position of Ontario Hydro as at December 31, 1986 and the statements of operations, equities accumulated through debt retirement appropriations, reserve for stabilization of rates and contingencies and source of cash used for investment in fixed assets for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of Ontario Hydro as at December 31, 1986 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Toronto, Canada,
March 9, 1987.

CLARKSON GORDON
Chartered Accountants

Ontario Hydro
Statement of Operations
for the year ended December 31, 1986

	1986	1985
	millions of dollars	
Revenues		
Primary power and energy		
Municipal utilities	**3,116**	2,891
Rural retail customers	**885**	815
Direct industrial customers	**604**	568
	4,605	4,274
Secondary power and energy (note 1)	**248**	351
	4,853	4,625
Costs		
Operation, maintenance and administration	**1,014**	966
Fuel used for electric generation	**933**	968
Water rentals (note 2)	**91**	87
Power purchased	**128**	163
Nuclear agreement – payback (note 3)	**(63)**	(75)
Depreciation (note 4)	**705**	655
	2,808	2,764
Income before financing charges	**2,045**	1,861
Interest (note 5)	**1,585**	1,325
Foreign exchange (note 6)	**213**	176
	1,798	1,501
Net income	**247**	360
Appropriation for (withdrawal from):		
Debt retirement	**292**	252
Stabilization of rates and contingencies	**(45)**	108
	247	360

See accompanying summary of significant accounting policies and notes to financial statements.

Ontario Hydro
Statement of Financial Position
as at December 31, 1986

	1986	1985
Assets	millions of dollars	
Fixed assets (note 7)		
Fixed assets in service	**23,312**	20,604
Less accumulated depreciation	**4,946**	4,614
	18,366	15,990
Construction in progress	**7,737**	8,159
	26,103	24,149
Current assets		
Cash and temporary investments	**285**	18
Accounts receivable	**543**	550
Fuel for electric generation (note 8)	**1,065**	1,015
Materials and supplies, at cost	**281**	215
	2,174	1,798
Other assets		
Unamortized debt costs	**1,597**	1,897
Unamortized advances for fuel supplies (note 9)	**884**	899
Unamortized deferred costs (note 10)	**283**	313
Long-term accounts receivable and other assets	**316**	264
	3,080	3,373
	31,357	29,320

See accompanying summary of significant accounting policies and notes to financial statements.

	1986	1985
Liabilities	millions of dollars	
Long-term debt (note 11)	**23,494**	22,518
Current liabilities		
Accounts payable and accrued charges	**473**	549
Short-term notes payable	**255**	223
Accrued interest	**742**	710
Long-term debt payable within one year	**1,076**	407
	2,546	1,889
Other liabilities		
Long-term accounts payable and accrued charges	**136**	158
Accrued irradiated fuel disposal and fixed asset removal costs (note 12)	**490**	311
	626	469
Contingencies (notes 3, 9, 13 and 15)		
Equity		
Equities accumulated through debt retirement appropriations	**2,910**	2,618
Reserve for stabilization of rates and contingencies	**1,654**	1,699
Contributions from the Province of Ontario as assistance for rural construction	**127**	127
	4,691	4,444
	31,357	29,320

On behalf of the Board

Tom Campbell. R.G. Franklin

Chairman President

Toronto, Canada,
March 9, 1987.

Ontario Hydro
Statement of Equities Accumulated Through Debt Retirement Appropriations
for the year ended December 31, 1986

	Municipal Utilities	Power District (Rural Retail and Direct Industrial Customers)	Totals	
			1986	1985
		millions of dollars		
Balances at beginning of year	1,827	791	**2,618**	2,366
Appropriation	200	92	**292**	252
Balances at end of year	2,027	883	**2,910**	2,618

Statement of Reserve for Stabilization of Rates and Contingencies
for the year ended December 31, 1986

	Held for the benefit of all customers	Held for the benefit of (or recoverable from) certain groups of customers			Totals	
		Municipal Utilities	Rural Retail Customers	Direct Industrial Customers	**1986**	1985
			millions of dollars			
Balances at beginning of year	1,742	1	(39)	(5)	**1,699**	1,591
Appropriation (withdrawal)	(38)	—	(2)	(5)	**(45)**	108
Balances at end of year	1,704	1	(41)	(10)	**1,654**	1,699

See accompanying summary of significant accounting policies and notes to financial statements.

Ontario Hydro
Statement of Source of Cash Used for Investment in Fixed Assets

for the year ended December 31, 1986

	1986	1985
	millions of dollars	
Operating activities		
Cash provided from operations (note 14)	**1,040**	1,055
Financing activities		
Long-term debt issued	**2,384**	1,781
Less retirements	**674**	1,024
Cash provided from financing	**1,710**	757
Investing activities in other assets – decrease (note 14)	**70**	18
Cash from operating, financing and other investing activities	**2,820**	1,830
Changes in cash and cash equivalents – (increase) decrease (note 14)	**(235)**	814
Cash used for investment in fixed assets	**2,585**	2,644
Changes in accounts payable and accrued charges affecting investment in fixed assets – (decrease)	**(62)**	(103)
Investment in fixed assets (note 14)	**2,523**	2,541

See accompanying summary of significant accounting policies and notes to financial statements.

1. Secondary power and energy

Secondary power and energy revenues include $247 million (1985 – $350 million) from sales of electricity to United States utilities.

2. Water rentals

Water rentals are the amounts paid primarily to the Province of Ontario for the use of water for hydraulic generation.

3. Nuclear agreement – payback

During 1983, units 1 and 2 of the Pickering Nuclear Generating Station were shut down for replacement of pressure tubes and have not operated since then. The Nuclear Agreement, which is described in the Summary of Significant Accounting Policies, allows maintenance and overhead costs during the shutdown period to be included in payback calculations. The calculations have resulted in negative payback amounts of $8 million in 1983, $36 million in 1984, $75 million in 1985 and $63 million in 1986. These amounts, totalling $182 million, have been credited against the costs of operations for the respective years and are included in "long-term accounts receivable and other assets". The basis for this accounting treatment is the belief by Ontario Hydro that under the Nuclear Agreement, these amounts, termed "negative payback", plus interest, can be offset against future positive payback amounts payable to the Province of Ontario and to Atomic Energy of Canada Limited when the units return to service. Atomic Energy of Canada Limited objected to this interpretation and took the position that "negative payback" is not to be offset against future positive payback amounts. In addition, during 1983, the parties to the Nuclear Agreement agreed that the provisions for irradiated fuel disposal costs related to Pickering Nuclear Generating Station units 1 and 2 be included, subject to further discussions, in the calculation of payback for the years 1982, 1983 and 1984, and also to discuss whether such costs should continue to be included in the calculation of payback subsequent to 1984.

During 1986, the parties to the Nuclear Agreement reached a settlement in principle regarding the interpretation of the agreement. The settlement establishes that the negative payback amounts accumulated during the shutdown period of the units, and included as long-term accounts receivable, are recoverable by Ontario Hydro. These amounts, plus interest, are to be recovered by Ontario Hydro over the remaining term of the Nuclear Agreement and will commence when the units are returned to service, which is expected in 1987. The settlement also provides that the termination date of the Nuclear Agreement be extended from the year 2001 to 2003. In addition, the settlement recognizes that the provisions for irradiated fuel disposal costs related to units 1 and 2 are properly allowable costs to be included in the calculation of payback. At this time, the amendment to the Nuclear Agreement to reflect the settlement in principle has not been finalized.

4. Depreciation	**1986**	1985
	millions of dollars	
Depreciation of fixed assets in service	**638**	594
Amortization of deferred costs	**41**	39
Provision for net removal costs	**106**	104
Other removal costs	**15**	10
	800	747
Less:		
Depreciation charged to – heavy water production	**51**	50
– construction in progress	**33**	27
– fuel for electric generation	**2**	2
Net gain on sales of fixed assets	**9**	13
	95	92
	705	655

5. Interest	1986	1985
	millions of dollars	
Interest on bonds, notes, and other debt	**2,650**	2,523
Interest on accrued irradiated fuel disposal and fixed asset removal costs	**34**	28
	2,684	2,551
Less:		
Interest charged to – construction in progress	**807**	933
– heavy water production	**112**	116
– fuel for electric generation	**102**	102
– unamortized advances for fuel supplies	**17**	15
Interest earned on investments	**61**	60
	1,099	1,226
	1,585	1,325

6. Foreign exchange	1986	1985
	millions of dollars	
Amortization of foreign exchange gains and losses	**189**	190
Net exchange loss (gain) on other foreign transactions	**24**	(14)
	213	176

7. Fixed assets	1986		
	Assets in Service	Accumulated Depreciation	Construction in Progress
	millions of dollars		
Generating stations – hydraulic	**1,844**	**572**	**26**
– fossil	**2,825**	**784**	**24**
– nuclear	**8,823**	**942**	**6,188**
Heavy water	**2,117**	**171**	**997**
Transmission and distribution	**4,748**	**1,283**	**425**
Heavy water production facilities	**1,128**	**339**	**—**
Administration and service facilities	**1,042**	**407**	**77**
Non-operating reserve facilities – fossil generating stations	**785**	**448**	**—**
	23,312	**4,946**	**7,737**

	1985		
	Assets in Service	Accumulated Depreciation	Construction in Progress
	millions of dollars		
Generating stations – hydraulic	1,830	544	11
– fossil	2,836	697	32
– nuclear	6,805	718	6,561
Heavy water	1,605	136	1,187
Transmission and distribution	4,462	1,182	304
Heavy water production facilities	1,128	285	—
Administration and service facilities	915	383	64
Non-operating reserve facilities – fossil generating stations	786	432	—
– heavy water production facilities	237	237	—
	20,604	4,614	8,159

7. Fixed assets (continued)

Non-operating reserve facilities consist of Lennox, R.L. Hearn, J.C. Keith and Thunder Bay unit 1 fossil generating stations. Substantially all of the undepreciated cost of non-operating reserve facilities is related to Lennox generating station, which based on current forecasts, is expected to return to operations in the mid 1990s. Based on current forecasts, Bruce Heavy Water Plant "A" has been declared surplus and, accordingly, the capital cost and accumulated depreciation related to this facility were reduced by $237 million effective December 31, 1986.

Construction in progress at December 31, 1986:

	Remaining Number of Units Scheduled	Planned In-Service Dates	Dependable Capacity to be Placed in Service	Costs Incurred to December 31, 1986	Estimated Costs to Complete (Excluding Escalation and Interest)
			megawatts	millions of dollars	
Nuclear generating stations (including heavy water)					
Bruce "B"	1	1987	835	1,497	81
Darlington	4	1988-92	3,524	5,187	2,665
All other construction in progress	—	—	—	1,053	—
				7,737	

Estimated costs to complete are the most recent projections. These estimates exclude cost escalation and interest which are forecast to average 6% and 11% per year, respectively, over the period 1987 to 1992. Because of the uncertainties associated with long construction lead times and planned in-service dates, these costs to complete are subject to change.

The fuel channel replacement program for Pickering "A" units 1 and 2 is estimated to cost $439 million, excluding interest and escalation. Of this total, $304 million is to be capitalized as installation costs, and the remaining $135 million is related to the removal costs of the existing pressure tubes and is being recovered through charges to operations as described in note 12. The actual expenditures for installation costs, including interest of $56 million, totalled $247 million as of December 31, 1986 and are included in all other construction in progress in the above table. The first two units of Pickering "A" are expected to be returned to service in 1987.

For 1987, additional investment in fixed assets is estimated to be approximately $2,532 million including escalation and interest.

8. Fuel for electric generation	**1986**	1985
	millions of dollars	
Inventories – uranium	**586**	533
– coal	**479**	482
	1,065	1,015

9. Unamortized advances for fuel supplies

	1986	1985
	millions of dollars	
Uranium – Rio Algom Limited	431	450
– Denison Mines Limited	359	355
	790	805
Coal	94	94
	884	899

Unamortized advances for fuel supplies are recovered as fuel is delivered. Contractual obligations for additional advance payments for uranium supplies together with interest capitalization approximately equal the amortization of advances for uranium supplies over the next five years.

Ontario Hydro has entered into long-term contracts with Denison Mines Limited and Rio Algom Limited for uranium supplies through to 2012 and 2027, respectively. Ontario Hydro's current forecast of the annual requirements for uranium is approximately 1,300 megagrams for 1987, increasing to approximately 1,900 megagrams by 1994. The forecasted requirements and contracted deliveries are in balance up to 1994. Commencing in 1994 through to 2012, contracted deliveries exceed requirements of the nuclear generating facilities currently in service and under construction by approximately 1,000 megagrams per year. Ontario Hydro's options for managing the oversupply include resale of the uranium and, under specified conditions, cancellation or renegotiation of the contracts. In the event that a contract is cancelled, the supplier is not required to refund any outstanding advances. At this time, the likelihood of a contract cancellation and the financial implications of pursuing the options are not determinable.

10. Unamortized deferred costs

	1986	1985
	millions of dollars	
Bruce Heavy Water Plant "D"	259	280
Wesleyville Generating Station	24	33
	283	313

Bruce Heavy Water Plant "D" is an indefinitely deferred project with a low probability of construction being resumed. The capital cost of this project and the unamortized deferred costs associated with the cancelled Wesleyville generating station project were not written off directly to operations since the Board of Directors under its rate setting authority determined that these costs be amortized for recovery through electricity rates over the period 1984 through 1993. As a result of a recent review, the costs of removal of Bruce Heavy Water Plant "D" have been estimated to be $18 million and, accordingly, this amount was included as an adjustment to the cost of this project, effective January 1, 1986. The amortization of the deferred costs associated with these projects results in an annual charge of $41 million for 1986.

11. Long-term debt

	1986	1985
	millions of dollars	
Bonds and notes payable	24,390	22,728
Other long-term debt	180	197
	24,570	22,925
Less payable within one year	1,076	407
	23,494	22,518

Bonds and notes payable:

Bonds and notes payable, expressed in Canadian dollars, are summarized by years of maturity and by the currency in which they are payable in the following table:

11. Long-term debt (continued)

Years of Maturity	1986 Principal Outstanding			1986 Weighted Average Coupon Rate	1985 Principal Outstanding	1985 Weighted Average Coupon Rate
	Canadian	Foreign	**Total**	per cent	Total	per cent
	millions of dollars				millions of dollars	
1986	—	—	**—**		386	
1987	738	316	**1,054**		1,039	
1988	853	336	**1,189**		1,191	
1989	517	818	**1,335**		1,347	
1990	1,030	740	**1,770**		1,756	
1991	1,148	942	**2,090**		—	
1- 5 years	4,286	3,152	**7,438**	11.7	5,719	11.5
6-10 years	3,400	2,069	**5,469**	10.8	5,026	12.8
11-15 years	2,389	646	**3,035**	10.9	2,473	9.5
16-20 years	2,058	1,296	**3,354**	10.5	4,096	11.2
21-25 years	1,793	2,663	**4,456**	11.0	4,005	10.5
26-30 years	—	638	**638**	14.4	1,409	14.8
	13,926	10,464	**24,390**	11.2	22,728	11.5

Currency in which payable:		
Canadian dollars	**13,926**	11,839
United States dollars	**10,355**	10,699
Swiss francs	**86**	122
West German Deutsche marks	**—**	41
United Kingdom pounds sterling	**23**	27
	24,390	22,728

Ontario Hydro has entered into financial arrangements to hedge a portion of the foreign currency exposure related to principal and interest payments with respect to long-term debt. As at December 31, 1986, these arrangements amounted to United States $744 million and Swiss francs 106 million, having weighted average Canadian dollar exchange rates of 1.39 and 0.87 respectively. These arrangements are primarily in short-term forward exchange contracts which hedge principal and interest payments due in 1987.

Bonds and notes payable in United States dollars include Canadian $7,083 million (1985 – Canadian $7,190 million) of Ontario Hydro bonds held by the Province of Ontario and having terms identical with Province of Ontario issues sold in the United States on behalf of Ontario Hydro. Bonds and notes payable are either held, or guaranteed as to principal and interest, by the Province of Ontario.

Ontario Hydro has entered into interest rate swap arrangements amounting to Canadian $350 million in notional principal as at December 31, 1986, and expiring in 1989 through 1993. These arrangements have effectively converted fixed interest rates on long-term debt, having a weighted average coupon rate of 9.82%, to variable interest rates which are adjusted quarterly to the prevailing Canadian bankers' acceptance rate.

Other long-term debt:

	Years of Maturity	Interest Rate	**1986**	1985
		per cent	millions of dollars	
Balance due to Atomic Energy of Canada Limited on purchase of Bruce Heavy Water Plant "A"	1992	7.8	**121**	137
Capitalized lease obligation for the Head Office building, payable in U.S. dollars	2005	8.0	**52**	53
Capitalized lease obligations for transport and service equipment	1987 to 1994	6.3 to 11.9	**7**	7
			180	197

11. Long-term debt (continued)
Payments required on the above debt, excluding interest, will total $111 million over the next five years. The amount payable within one year is $22 million (1985 – $21 million).

12. Accrued irradiated fuel disposal and fixed asset removal costs

	1986	1985
	millions of dollars	
Accrued irradiated fuel disposal costs	**243**	189
Accrued fixed asset removal costs	**247**	122
	490	311

Irradiated fuel disposal costs:

The significant assumptions used in estimating the future irradiated fuel disposal costs were:
- an in-service date of the year 2010 for irradiated nuclear fuel disposal facilities;
- a transportation distance of 1,000 kilometres from nuclear generating facilities to disposal facilities;
- interest rates through to the disposal date ranging from 9% to 12% (1985 – 10% to 15%); and
- escalation rates through to the disposal date ranging from 5% to 9% (1985 – 5% to 12%).

Because of the uncertainties associated with the technology of disposal, and the above factors, these costs are subject to change.

Fixed asset removal costs:

Fixed asset removal costs are the costs of decommissioning nuclear generating stations and heavy water production facilities after the end of their service lives, and the costs of removing certain fuel channels from nuclear reactors which are expected to be replaced during the life of the reactors. The significant assumptions used in estimating fixed asset removal costs were:
- decommissioning of nuclear generating stations in the 2041 to 2062 period on the deferred dismantlement basis (dismantlement following storage with surveillance for a 30-year period after shutdown of the reactors), and a transportation distance of 1,000 kilometres from nuclear generating facilities to disposal facilities;
- dismantlement of Bruce Heavy Water Plants "A", "B" and "D" in the 1991 to 2005 period;
- removal of fuel channels in Pickering Nuclear Generating Station "A" units 1 and 2 in the 1984 to 1987 period and units 3 and 4 in the 2000 to 2003 period, and Bruce Nuclear Generating Station "A" in the 2002 to 2010 (1985-2002 to 2007) period, and commencing in 1986, Pickering "B" in the 2012 to 2018 period and Bruce "B" in the 2013 to 2019 period;
- interest rates through to 2062 ranging from 9% to 12% (1985 – 10% to 15%); and
- escalation rates through to 2062 ranging from 5% to 8% (1985 – 5% to 12%).

Because of the uncertainties associated with the technology of decommissioning and fuel channel removal, and the above factors, these costs are subject to change.

The fuel channel removal costs for Pickering "A" units 1 and 2 are being recovered by way of annual provision through to 1987 when both units are expected to return to service. As of December 31, 1986, annual provisions totalled $124 million with actual expenditures incurred amounting to $114 million.

13. Fuel oil contract
Ontario Hydro contracted with Petrosar Limited for the purchase of 20,000 barrels of residual fuel oil per day through to April 1992. Deliveries for the years 1981 and 1982 were 6% and 2%, respectively, of the contract quantities and no deliveries were taken since then. Amounts have been charged to the costs of operations in prior years to provide for settlement with respect to reduced deliveries up to and including 1982. Ontario Hydro advised Petrosar Limited on May 24, 1983 that the contract is at an end due to Petrosar Limited's prior undertaking to the Government of Canada to limit its production of

13. Fuel oil contract (continued)
residual fuel oil to an amount less than the contracted quantities. Petrosar Limited commenced actions claiming damages of $45.5 million and $59.9 million for failure to take the contract quantities in 1981 and 1982, respectively. Ontario Hydro counterclaimed for $39.4 million paid to Petrosar Limited in 1980, 1981 and 1982 and an accounting for the difference between market and contract prices for residual fuel oil supplied since the date of such undertaking. The trial on this matter in the Supreme Court of Ontario ended on March 18, 1986. On April 21, 1986, the Supreme Court rendered its decision that the contract between Ontario Hydro and Petrosar Limited was at an end, and that Petrosar Limited was to return the $25.5 million previously paid by Ontario Hydro with respect to 1981 and 1982, plus costs and interest. Petrosar Limited has appealed the court's decision. These financial statements do not reflect the effects of the court's decision.

14. Statement of Source of Cash Used for Investment in Fixed Assets

The Statement of Source of Cash Used for Investment in Fixed Assets reports the investment in fixed assets resulting from the cash flows from operating, financing and other investing activities, and the effects of changes in cash and cash equivalents and changes in accounts payable and accrued charges affecting investment in fixed assets during the year. This statement focuses on the investment in fixed assets in view of Ontario Hydro's current level of construction activities which are financed from two major sources, cash provided from operations and cash from external borrowings.

The components of cash provided from operations, investment in other assets, and changes in cash and cash equivalents, defined to be cash and temporary investments net of short-term notes payable, are summarized below.

Cash provided from operations:	**1986**	1985
	millions of dollars	
Net income	**247**	360
Items not requiring cash in the current year		
Depreciation	**705**	655
Amortization of foreign exchange gains and losses	**189**	190
Provision for irradiated fuel disposal costs	**35**	24
Nuclear agreement – payback	**(63)**	(75)
Other	**16**	21
Funds provided from operations	**1,129**	1,175
Changes in working capital, excluding cash and cash equivalents, and long-term accounts payable affecting operations – (increase)	**(89)**	(120)
Cash provided from operations	**1,040**	1,055

Investment in other assets:	**1986**	1985
	millions of dollars	
Advances and related costs for fuel supplies	**(32)**	(37)
Less repayments and amortization of advances for fuel supplies	**49**	39
	17	2
Other	**53**	16
Investment in other assets – decrease	**70**	18

Changes in cash and cash equivalents:	**1986**	1985
	millions of dollars	
Cash and temporary investments – (increase) decrease	**(267)**	640
Short-term notes payable – increase	**32**	174
Changes in cash and cash equivalents – (increase) decrease	**(235)**	814

14. Statement of Source of Cash Used for Investment in Fixed Assets (continued)

The reconciliation of the change in fixed assets during the year with the investment in fixed assets for the year is summarized below.

	1986	1985
	millions of dollars	
Change in fixed assets	**1,954**	2,002
Depreciation of fixed assets in service	**638**	594
Less depreciation charged to heavy water production and construction in progress	**(84)**	(77)
	554	517
Net book value of fixed assets sold or retired	**15**	22
Investment in fixed assets	**2,523**	2,541

15. Pension and Insurance Plans

Ontario Hydro's employee benefit programs include pension and insurance plans. The assets of the pension, group life insurance and long-term disability plans and the changes in assets during the year are shown in the financial statements of The Pension and Insurance Fund, and are not included in Ontario Hydro's financial statements.

Pension Plan:

The most recent actuarial valuation of Ontario Hydro's pension plan as at December 31, 1985 reported a surplus of approximately $399 million (December 31, 1984–$220 million). The increase in the pension plan surplus during 1985 is attributable to an experience surplus of $194 million and a surplus of $87 million arising from changes in actuarial methodology, partially offset by an application of $42 million towards plan improvements on January 1, 1985, and the amortization of $60 million of the established surplus. In 1986, $59 million of the $399 million surplus was applied towards plan improvements to the pension plan.

The significant actuarial assumptions used in the 1985 and 1984 valuations were:

- rate used to discount future investment income–8.5%, and future benefits–8%;
- salary escalation rate–8%;
- average retirement age for males–60.7 (1984–60.3) and for females–61.0 (1984–61.2); and
- corporate shares valuation–five-year market value average.

The pension plan costs for 1986 were nil (1985–$21 million) after the application of $74 million (1985–$58 million) of pension plan surplus to meet Ontario Hydro's current service cost for 1986.

On October 21, 1986, the Ontario Hydro Employees Union, Local 1000 of the Canadian Union of Public Employees–C.L.C. filed an application for judicial review in the Supreme Court of Ontario to determine whether Ontario Hydro is entitled to apply the pension surplus that has accumulated in Ontario Hydro's pension plan to meet the Corporation's contribution with respect to current service cost. The hearing on this matter was held on February 5, 1987. On March 3, 1987, the Supreme Court rendered its decision that Ontario Hydro has complied with the relevant statutory provisions regarding the corporate contribution towards current service cost. The Ontario Hydro Employees Union has the right to seek leave to appeal the court's decision.

Group Life Insurance Plan:

The group life insurance plan had a surplus of approximately $33 million as of December 31, 1986 (December 31, 1985–$34 million). Effective April 1, 1986, this surplus will be used to pay the insurance premiums for all members of the plan until the surplus is fully utilized.

16. Research and development

In 1986, approximately $71 million of research and development costs were charged to operations and $21 million were capitalized (1985–$63 million and $17 million, respectively).

Ontario Hydro
Five-Year Summary of
Financial Statistics

	1986	1985	1984	1983	1982
			millions of dollars		
Revenues					
Primary power and energy					
Municipal utilities	**3,116**	2,891	2,555	2,265	1,997
Rural retail customers	**885**	815	712	644	576
Direct industrial customers	**604**	568	516	448	395
	4,605	4,274	3,783	3,357	2,968
Secondary power and energy	**248**	351	429	448	419
	4,853	4,625	4,212	3,805	3,387
Costs					
Operation, maintenance and administration	**1,014**	966	884	952	854
Fuel and fuel related	**1,089**	1,143	1,210	1,169	1,094
Depreciation	**705**	655	476	396	348
	2,808	2,764	2,570	2,517	2,296
Income before financing charges	**2,045**	1,861	1,642	1,288	1,091
Financing charges					
Gross interest	**2,684**	2,551	2,322	2,012	1,708
Capitalized interest	**(1,038)**	(1,166)	(1,293)	(1,194)	(968)
Investment income	**(61)**	(60)	(80)	(58)	(67)
Foreign exchange	**213**	176	118	56	70
	1,798	1,501	1,067	816	743
Net income	**247**	360	575	472	348
Financial position					
Total assets	**31,357**	29,320	27,301	23,194	20,721
Fixed assets	**26,103**	24,149	22,147	19,948	17,600
Long-term debt	**23,494**	22,518	20,659	17,977	15,882
Equity	**4,691**	4,444	4,084	3,509	3,037
Source and use of cash					
Cash from operations	**1,040**	1,055	1,088	950	686
Cash from financing	**1,710**	757	1,756	1,823	2,172
Cash used for investment in fixed assets	**2,585**	2,644	2,539	2,668	2,690
Investment in fixed assets	**2,523**	2,541	2,624	2,746	2,885
Financial indicators					
Debt ratio[1]	**.835**	.830	.833	.840	.845
Cash flow coverage[2]	**1.05**	1.02	.96	.88	.89
Interest coverage[3]	**1.09**	1.14	1.25	1.24	1.20

	1986	1985	1984	1983	1982
		in cents per kilowatt-hour of total energy sales			
Average revenue[4]					
Primary power and energy					
Municipal utilities	**3.894**	3.754	3.440	3.210	2.981
Rural retail customers	**5.909**	5.720	5.143	5.027	4.475
Direct industrial customers	**3.272**	3.155	2.896	2.740	2.614
Secondary power and energy	**4.102**	4.098	4.037	3.768	3.895
All classifications combined	**4.017**	3.925	3.586	3.409	3.203
		expressed as a per cent			
Average rate increases					
Municipal utilities	**4.0**	8.5	8.0	8.2	9.6
Rural retail customers	**3.8**	8.7	7.5	8.8	8.7
Direct industrial customers	**4.3**	8.8	7.6	8.5	10.0
		in cents per kilowatt-hour of energy generated			
Average cost[4][5]					
Hydraulic					
Operation, maintenance and administration	**.200**	.187	.184	.159	.173
Fuel–water rentals	**.243**	.233	.164	.076	.073
Depreciation and financing charges	**.414**	.399	.384	.345	.360
	.857	.819	.732	.580	.606
Nuclear					
Operation, maintenance and administration	**.472**	.479	.506	.491	.487
Fuel–uranium	**.481**	.426	.361	.357	.384
Depreciation and financing charges	**2.051**	1.889	1.330	1.026	.883
	3.004	2.794	2.197	1.874	1.754
Fossil					
Operation, maintenance and administration	**.544**	.437	.348	.368	.402
Fuel–coal, gas and oil	**2.745**	2.609	2.500	2.417	2.328
Depreciation and financing charges	**1.444**	.997	.597	.586	.683
	4.733	4.043	3.445	3.371	3.413

Footnotes

(1) Debt ratio represents debt (bonds and notes payable, short-term notes payable, other long-term debt, and accrued irradiated fuel disposal and fixed asset removal costs less unamortized foreign exchange gains and losses) divided by debt plus equity.

(2) Cash flow coverage ratio represents funds provided from operations plus net interest, and interest charged to fuel for electric generation less interest on accrued provisions divided by interest on bonds, notes, and other debt.

(3) Interest coverage represents net income plus interest on bonds, notes, and other debt divided by interest on bonds, notes and other debt.

(4) Figures for 1986 are preliminary.

(5) Average cost per kilowatt-hour represents the costs attributable to generation but excludes the costs related to transmission, distribution and corporate administrative activities. These figures reflect the historical accounting costs of operating facilities and the actual energy generated by these facilities during the year.

	1986	1985	1984	1983	1982
			in millions of kilowatt-hours		
Customer statistics[1]					
Primary energy sales					
Municipal utilities	**80,026**	77,011	74,283	70,579	67,021
Rural retail	**16,279**	15,638	14,732	14,006	13,716
Direct industrial	**18,458**	18,011	17,816	16,345	15,119
	114,763	110,660	106,831	100,930	95,856
Secondary energy sales	**6,046**	8,565	10,627	11,900	10,753
			in thousands		
Total Ontario customers					
Residential	**2,774**	2,712	2,652	2,604	2,559
Farm	**106**	107	107	108	110
Commercial and industrial	**361**	354	346	339	335
	3,241	3,173	3,105	3,051	3,004
			in kilowatt-hours per customer		
Average annual use					
Residential	**10,700**	10,618	10,590	10,149	9,976
Farm	**23,004**	22,618	22,556	21,389	21,135
Commercial and industrial	**215,000**	213,673	212,700	200,436	194,376
			in cents per kilowatt-hour		
Average revenue					
Residential	**5.62**	5.42	5.02	4.69	4.34
Farm	**6.01**	5.74	5.24	4.87	4.50
Commercial and industrial	**4.20**	4.03	3.74	3.50	3.28
Operating statistics					
Dependable peak capacity ('000 kW)[2]	**30,701**	28,224	26,612	25,269	24,906
December primary peak demand ('000 kW)	**20,609**	20,473	18,052	18,792	16,872
Primary energy made available ('000,000 kW.h)	**120,574**	116,049	112,293	106,071	100,836
Total staff, average for year (includes regular and temporary staff)	**32,405**	31,166	29,613	31,233	32,654

Footnotes

(1) Figures for 1986 are preliminary.

(2) Includes mothballed generation: 1986 – 3,782,700 kW; 1985 – 3,932,700 kW; 1984 – 3,999,200 kW; 1983 – 3,783,200 kW; and 1982 – 3,034,200 kW.

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